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ABSTRACT

Six sequential Basic Skill Levels (levels A through F) of a self-paced, individualized mathematics program designed to improve the achievement of junior high school students are presented in this student workbook. Each level includes a pretest, seven to 10 lessons, quizzes (checkpoints) after each fourth lesson, a posttest, and a level review worksheet. Students must successfully complete the level they are on before proceeding to the next. The levels presented in this workbook are: (1) introduction to whole numbers; (2) addition of whole numbers; (3) subtraction of whole numbers; (4) multiplication of whole numbers; (5) division of whole numbers; and (6) working with whole numbers. (DC)

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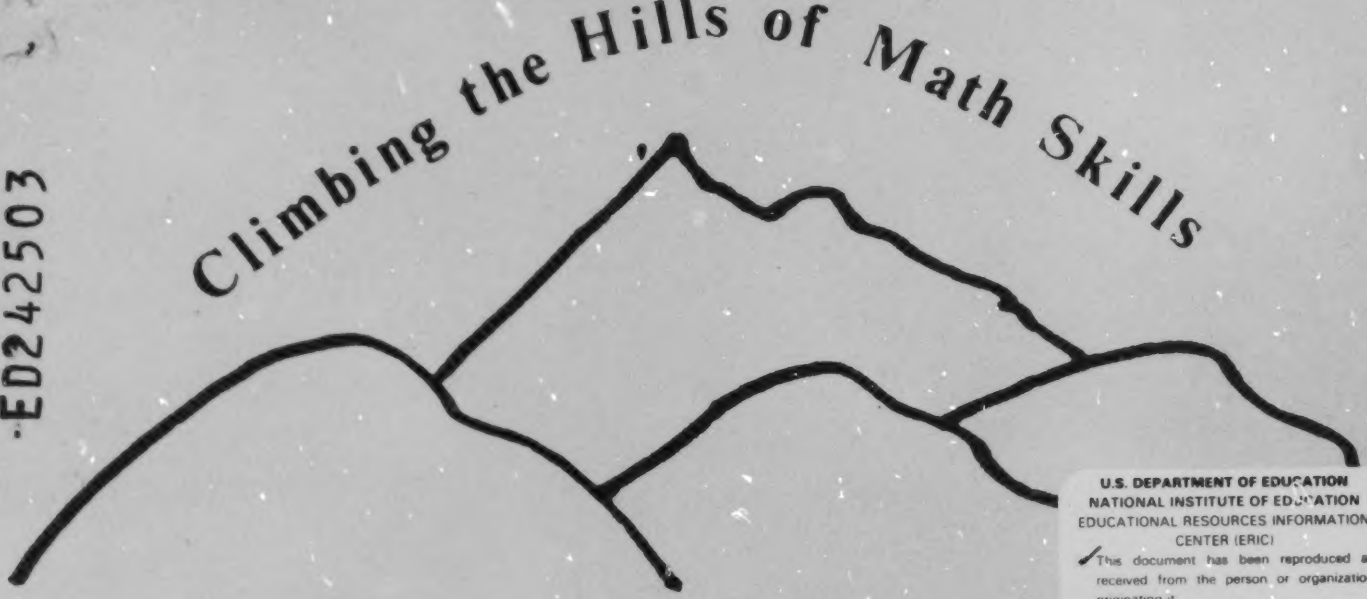


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CALIFORNIA

# DEMONSTRATION MATHEMATICS PROGRAM

# Whole Numbers

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Hillview Junior High

Pittsburg Unified School District

Pittsburg, California

SE044127

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HILLVIEW JR. HIGH SCHOOL
CALIFORNIA MATH DEMONSTRATION PROGRAM

## WHOLE NUMBERS


LEVEL A Introduction to Whole Numbers

LEVEL B Addition of Whole Numbers

LEVEL C Subtraction of Whole Numbers

LEVEL D Multiplication of Whole Numbers

LEVEL E Division of Whole Numbers

LEVEL F Working with Whole Numbers


(Each Level consists of a Pretest, Lessons, Checkpoints, Posttest and Level Review)

(30) Write in expanded form 329.

( x ) + ( x ) + ( x )

(31) Write in expanded form 4976.

(32) Write in compact form.

(4 x 100) + (6 x 10) + (5 x 1) = _____

(A-6)

(33) $2^3$ Which number is the exponent _____

| | Factors | Final answer |
|---|---|---|
| (34) $2^4$ = | 2 x 2 x 2 x 2 = | |
| (35) $5^2$ = | x = | |
| (36) $9^1$ = | = | |
| (37) $10^3$ = | = | |
| (38) $10^5$ = | = | |
| (39) ___ = | = | 10,000 |

(40) Write in expanded form using exponents

5,627 = ( x ) + ( x ) + ( x ) + ( x )

(41) 9,028 = ( x ) + ( x ) + ( x )

(A-7)

# INTRODUCTION TO NUMBERS A - 1

Name_____ Period____ Date_____

| Objective: | You will be able to identify place value through hundreds and read and write numerals through hundreds. |
|---|---|

The symbols that we use to represent numbers are called numerals. With the ten basic symbols, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, we can write numerals (number names) for all numbers, large and small. But to do this we need "place values". Look at the chart below, the first problem is done for you.

Put these numbers in the proper place value positions.

| | HUNDRED's | TEN's | ONE's |
|---|---|---|---|
| (1) 25 | | 2 | 5 |
| (2) 26 | | | |
| (3) 99 | | | |
| (4) thirty-one | | | |
| (5) 109 | | | |
| (6) 375 | | | |
| (7) Two hundred twenty-two | | | |
| (8) Seven hundred thirty-eight | | | |
| (9) Three hundred twenty-seven | | | |
| (10) Two hundred two | | | |
| (11) Forty-five | | | |
| (12) Nine hundred nine | | | |
| (13) Six hundred forty-five | | | |

Match the number with its word name.

(14) 86 _____ (a) four hundred thirty-two

(15) 432 _____ (b) two hundred three

(16) 203 _____ (c) eighty-six

(17) 46 _____ (d) forty-six

A - 1 (continued)

Write the word name for each numeral that is given. A list of word names is given for you to refer to for spelling.

(18) 4 _____ (19) 16 _____

(20) 35 _____ (21) 72 _____

(22) 241 _____

(23) 536 _____

(24) 837 _____

(25) 402 _____

(26) 659 _____

Spelling Aids

| | | | |
|---|---|---|---|
| one | eight | fifteen | forty |
| two | nine | sixteen | fifty |
| three | ten | seventeen | sixty |
| four | eleven | eighteen | seventy |
| five | twelve | nineteen | eighty |
| six | thirteen | twenty | ninety |
| seven | fourteen | thirty | one hundred |

In the following put an X in the box that correctly tells the place value of the circled numeral.

(27) (6)3
- ☐ six ones
- ☐ six tens
- ☐ six hundreds

(28) 42(1)
- ☐ one
- ☐ one ten
- ☐ one hundred

(29) (7)68
- ☐ seven ones
- ☐ seven tens
- ☐ seven hundreds

(30) 5(0)4
- ☐ zero ones
- ☐ zero tens
- ☐ zero hundreds

(31) (6)23
- ☐ six ones
- ☐ six tens
- ☐ six hundreds

(32) 78(1)
- ☐ one
- ☐ one ten
- ☐ one hundred

Name_____ Period_____ Date_____

Objectives: You will be able to identify place value through thousands and read and write numerals through thousands.

Study the following place value chart.

| THOUSANDS | HUNDREDS | TENS | ONES |
|---|---|---|---|

To read a numeral correctly we must know how to use place value.

For example: 3,562 is read three thousand five hundred sixty-two

| | THOUSANDS | HUNDREDS | TENS | ONES |
|---|---|---|---|---|
| Ex.) 3,562 | 3<br>three thousand | 5<br>five hundred | 6<br>sixty | 2<br>two |
| 1) 6,598 | 6 | 5 | 9 | 8 |
| 2) 8,645 | 8 | 6 | 4 | 5<br>five |
| Please note zero is a "silent" place holder | | | | |
| 3) 4,039 | 4<br>four thousand | 0 | 3<br>thirty | 9<br>nine |
| 4) 9,320 | 9 | 3<br>three hundred | 2 | 0 |
| COMPLETE THE FOLLOWING | | | | |
| 5) 7,777 | 7 | 7 | 7 | 7 |
| 6) 9,000 | 9 | 0 | 0 | 0 |
| 7) 1,009 | 1 | 0 | 0 | 9 |

A - 2

In the following you are given the word name for the number and you are to write the numeral

| | | | | | |
|---|---|---|---|---|---|
| 9) | four thousand | six hundred | twenty | five | |
| | 4 | 6 | 2 | 5 | = 4,625 |
| 10) | nine thousand | five hundred | seventy | six | |
| | | | | | = 9,576 |
| 11) | six thousand | | | | |
| | | | 0 | | = 6,000 |
| 12) | | five hundred | | | |
| | | | | | = 500 |
| 13) | four thousand | | twenty | two | |
| | | | | | = 4,022 |
| 14) | seven thousand | | | one | |
| | | | | | = 7,001 |

Comma's are used in writing numerals to make them easier to read. They are used after every three digits beginning from the <u>right</u>.

For example 6438 = 6,438

Insert comma's in each of the following:

15) 9 3 5 6 16) 1 4 0 0 3 17) 7 0 0 8 4 5

18) 6 9 5 7 3 8 4 3 5 7 19) 4 7 8 2 7 8 20) 5 4 2 3

21) 5 9 3 4 4 4 6 2 22) 6 5 7 8 23) 1 0 0 0 0

24) 9 0 0 8 4 2 25) 1 0 0 0 0 0 0 0 0 0 0 0 0 0

4,857 What digit is in the following places

26) tens place _____

27) hundreds place _____

28) thousands place _____

29) ten thousands place _____

30) ones place _____

Name _____ Period ___ Date _____

| Objective: | You will be able to identify place value through the billions and to read and write numerals through the billions. |
|---|---|

| Billions | Hundred Millions | Ten Millions | Millions | Hundred Thousands | Ten Thousands | Thousands | Hundreds | Tens | Ones |
|---|---|---|---|---|---|---|---|---|---|
| 1 | , | 7 8 6 | , | 4 | 5 0 | , | 2 | 3 | 9 |

What digit in the number above is in the following places?

1) hundreds _____
2) billions _____
3) tens _____
4) ten thousands _____
5) hundred millions _____
6) millions _____

You should memorize the place values in large numbers

LOOK FOR PATTERN !!

A - The Commas divide the number into groups

1,786,450,239

B - Each group has a special name except the first group (the one on the right). The first digit (on the right) of each group names the group. (see the * below).

1,686,450,239 ——This group has no name

7) The 0 is in the thousands place so the group is named thousands.
8) The 6 is in the _____ place so the group is named _____.
9) The 1 is in the _____ place so the group is named _____.
10) 1st group no name 2nd group thousands
3rd group _____ 4th group _____

Name the group circled

| | | |
|---|---|---|
| 11) | 1,387,423 | 2nd group - thousands |
| 12) | 4,000,971,271 | 4th group - |
| 13) | 5,381,138,888 | 3rd group - |
| 14) | 4,324 | 1st group - |
| 15) | 14,676,012 | - |
| 16) | 495,000,000,000 | - |
| 17) | 8,176,715 | - |
| 18) | 743,672,113 | - |

Remember: The first digit on the right names the group.
The middle digit in the group is always ten.
The last digit on the left is always hundred.

5,749,280,613

What digit above is in the following places?

| | | | |
|---|---|---|---|
| 19) | hundreds 6 | 24) | hundred thousands _____ |
| 20) | ten thousands _____ | 25) | ones _____ |
| 21) | hundred millions _____ | 26) | ten millions _____ |
| 22) | billions _____ | 27) | millions _____ |
| 23) | tens _____ | 28) | thousands _____ |

To read and write large numbers, all you need to know is:

A) To read or write a three digit number (345)

B) Name of the groups

Write these numbers in words (425,057,500,008)

| | | |
|---|---|---|
| 29) | 425 _____ | (billion) |
| 30) | 057 _____ | (million) |
| 31) | 500 _____ | (thousand) |
| 32) | 008 _____ | |

To read or write large numbers do the following:

A) Divide into groups

B) Read or write the digits in the last group (left) then say or write the group name.

Write these numbers in words:

Ex.) 1,807,300 a) Divide into groups (1),(807),(300)

b) Write numbers in groups and group name.

1,807,300 one million eight hundred seven thousand three hundred

Ex.) 4,000,002 a) Divide into groups (4),(000),(002)

b) Write numbers in groups and group name.

4,000,002 four million two

(When all digits in a group are zeroes, you don't have to write that group).

33) 40,500 _____

34) 1,000,003 _____

35) 478,057 _____

36) 4,000,000,000 _____

37) 3,900,371 _____

38) 63,400,576 _____

39) 4,000,300,000 _____

40) 71,010,000,007 _____

To write large numbers from words, do the following:

a) Read the number and decide how many groups you need.

b) Put three spaces in each group

c) Fill in each group with digits named in problem.

d) Fill in all the blank spaces between with zeroes.

Example: four million thirty seven = 4000,037

a) Million - 3 groups (___),(___),(___)

b) (---),(---),(---)

c) (--4),(---),(-37)

d) (--1),(000),(037)

11

Write these as numbers

41) six thousand _____

42) twenty thousand forty _____

43) five million two hundred _____

44) forty three billion _____

45) sixty two thousand four hundred sixty six _____

46) twenty billion two _____

47) sixteen million four thousand _____

48) eight hundred twenty seven _____

49) seven billion six thousand three _____

50) four hundred thousand thirty seven _____

Name _____ Period _____ Date _____

Level - A - Checkpoints 1-3

In the following put an X in the box that correctly tells the place value of the circled numeral.

(1) 2(7)0 ☐ seven ones ☐ seven tens ☐ seven hundreds

(2) 46(5) ☐ five ones ☐ five tens ☐ five hundreds

(3) (9)81 ☐ nine ones ☐ nine tens ☐ nine hundreds

Write in words the following numbers.

(4) 410 _____

(A-1)

(5) 3,725 _____

(A-2)

(6) 4,030,004 _____

(A-2)

Place comma's correctly in the following numbers.

(7) 4758 178923 3490842

(A-2)

5,479,280,613

What digit above is in the following places?

(8) Hundreds place _____ (A-2)

(9) ten thousands place _____ (A-3)

(10) hundred millions place _____ (A-3)

Name _____ Period _____ Date _____

Level A A - Checkpoints 1 - 3

In the following put an X in the box that correctly tells the place value of the circled numeral.

(1) (5)32 ☐ five ones ☐ five tens ☐ five hundreds

(2) 64(8) ☐ eight ones ☐ eight tens ☐ eight hundreds

(3) 9(7)1 ☐ seven ones ☐ seven tens ☐ seven hundreds

(A-1)

Write in words the following numbers.

(4) 340 _____ (A-1)

(5) 8,617 _____ (A-2)

(6) 7,020,001 _____ (A-3)

Place commas correctly in the following numbers.

(7) 3842 173642 4825600

(A-2)

6,701,358,924

What digit above is in the following places?

(8) tens place _____ (A-1)

(9) hundred millions place _____ (A-3)

(10) billions place _____ (A-3)

INTRODUCTION TO NUMBERS A-4

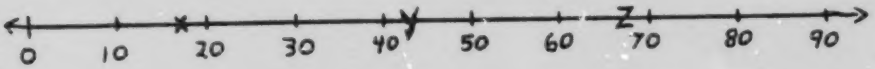
Name _____ Period ____ Date _____

Objective: You will be able to round off numbers up to the hundreds place.

Count to 100 by 10's starting with zero.

(0, 10, 20, 30, 40, 50, 60,70, 80, 90, 100)

Two things that these numbers have in common are, they are all multiples of ten and they all have zero in the one's place.




Look at the number line above. It is marked off by 10's. Circle which multiple of ten each of these letters is closest to:

1) x is closest to 10 or 20

2) y is closest to 40 or 50

3) z is closest to 60 or 70

Rounding off numbers to the nearest tens is the same as counting by tens or finding the multiple of ten it is closest to.

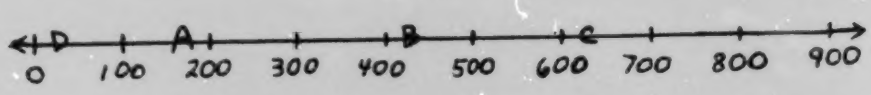
Circle which multiple of ten these numbers are closest. (You are rounding off to the nearest tens.)

| | | | | | |
|---|---|---|---|---|---|
| 4) | 17 | 10 or 20 | 5) | 34 | 30 or 40 |
| 6) | 59 | 50 or 60 | 7) | 72 | 70 or 80 |
| 8) | 6 | 0 or 10 | 9) | 66 | 60 or 70 |
| 10) | 48 | 40 or 50 | 11) | 25 | 20 or 30 |

What about problem #11, it is exactly halfway between 20 and 30. When a number ends in 5 we will go with the larger number. Circle the multiples of ten that these numbers are closest to.

| | | | | | |
|---|---|---|---|---|---|
| 12) | 15 | 10 or 20 | 13) | 3 | 0 or 10 |
| 14) | 85 | 80 or 90 | 15) | 65 | 60 or 70 |

Now count to 1,000 by 100's starting with zero. (0, 100, 200, 300, 400, 500, 600, 700, 800, 900, 1,000)
Two things that these numbers have in common are they are all multiples of 100 and they all have zero's in the ten's and one's places.




Look at the number line above. It is marked off by 100's. Circle which multiple of 100 each letter is closest to.

16) A is closest to 100 or 200 17) B is closest to 400 or 500

18) C is closest to 600 or 700 19) D is closest to 0 or 100

Rounding off to the nearest hundreds is the same as counting by hundreds or finding the multiple of hundred's these numbers are closest to.
Circle which multiple of hundred these numbers are closest to. (You are rounding off to the nearest 100).

20) 171 100 or 200 21) 247 200 or 300

22) 834 800 or 900 23) 783 700 or 800

24) 651 600 or 700 25) 962 900 or 1000

26) 3243 3200 or 3300 27) 4676 4600 or 4700

Round these numbers off to the nearest:

| | 10's | | 100's |
|---|---|---|---|
| 28) 46 | _____ | 29) 273 | _____ |
| 30) 82 | _____ | 31) 862 | _____ |
| 32) 4 | _____ | 33) 417 | _____ |
| 34) 67 | _____ | 35) 623 | _____ |

Name_____Period_____Date_____

Objective: You will be able to round off numbers up to the millions place.

The sports headline read "32 Thousand Fans Cheered the Home Team to Victory Last Night". Do you think that exactly 32,000 people attended the game? _____

I hope you answered no, because 32 thousand is probably the estimated attendance figures. Maybe 32,002 people attended, but the sports writer only needed to report about how many people attended, so he rounded the attendance figure to the nearest thousand.

In this lesson you will learn how to round when you don't need to know the exact numbers.

Rounding off is a formal way of estimating.

How many students attend Hillview Jr. High? About _____ You rounded off to the nearest _____

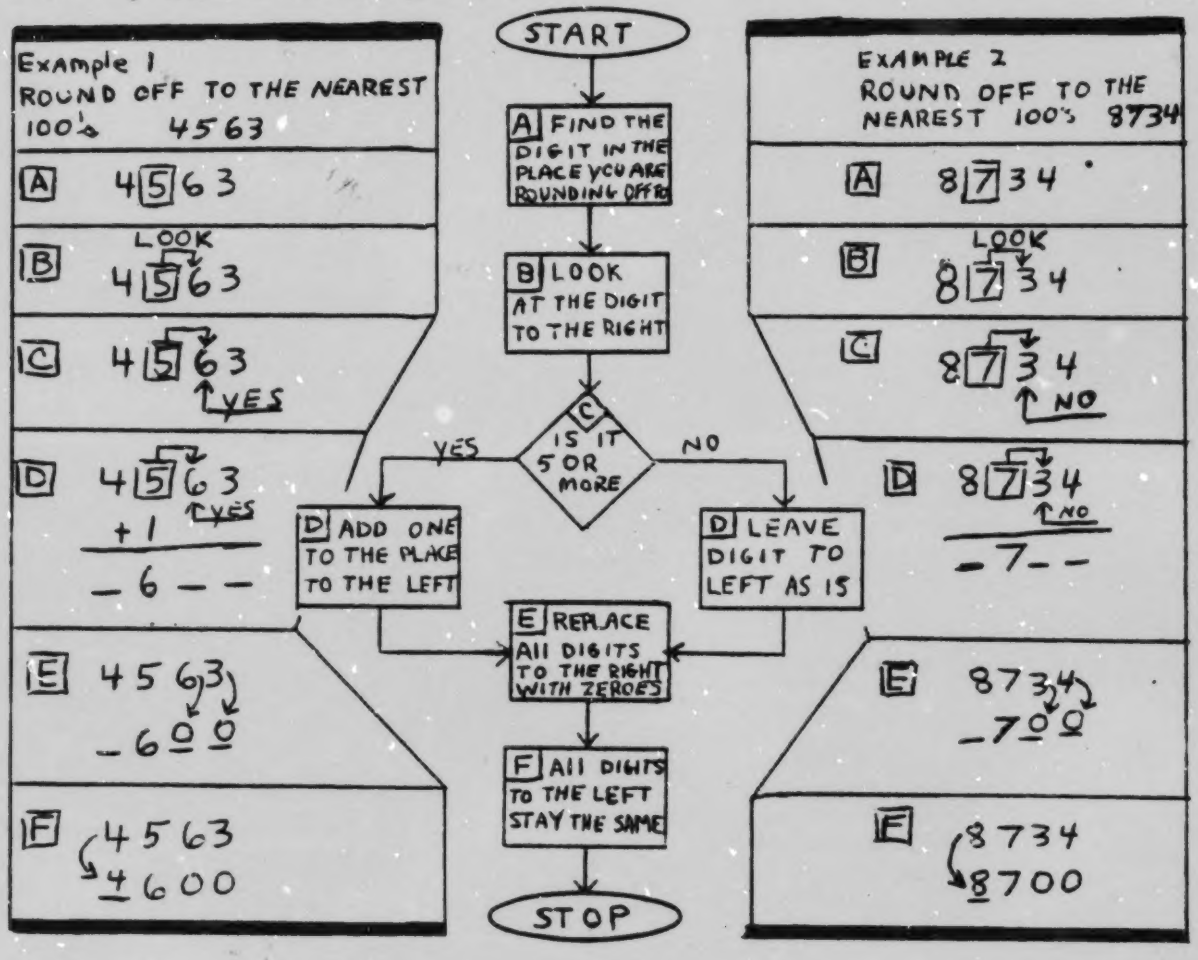
Rounding off to the nearest 10's, the one's place will always be zero.

Rounding off to the nearest 100's, the ten's and one's place will always be zero.

Remember rounding off is like counting by whatever number you are rounding off by (rounding off by 1000's count by 1000's starting with zero).

17

Look at the Flow Chart and examples below to see how to round off any number to any place.


START
A FIND THE DIGIT IN THE PLACE YOU ARE ROUNDING OFF TO
B LOOK AT THE DIGIT TO THE RIGHT
C IS IT 5 OR MORE
YES
NO
D ADD ONE TO THE PLACE TO THE LEFT
D LEAVE DIGIT TO LEFT AS IS
E REPLACE ALL DIGITS TO THE RIGHT WITH ZEROES
F ALL DIGITS TO THE LEFT STAY THE SAME
STOP
Example 1
ROUND OFF TO THE NEAREST 100's 4563
A 4563
B LOOK 4563
C 4563 YES
D 4563 YES +1 -6--
E 4563 -600
F 4563 4600
EXAMPLE 2
ROUND OFF TO THE NEAREST 100's 8734
A 8734
B LOOK 8734
C 8734 NO
D 8734 NO -7--
E 8734 -700
E 8734 8700

Round off to the nearest 10's. Use the flow chart to help you.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1) | 47 | _____ | 2) | 63 | _____ | 3) | 39 | _____ |
| 4) | 145 | _____ | 5) | 4 | _____ | 6) | 3,242 | _____ |
| 7) | 72 | _____ | 8) | 6 | _____ | 9) | 351 | _____ |

Round off to the nearest 100's. Use the flow chart to help you.

10) 43 _____ 11) 393 _____ 12) 247 _____

13) 653 _____ 14) 762 _____ 15) 3,495 _____

16) 487 _____ 17) 302 _____ 18) 4,230 _____

Round off to the nearest 1000's. Use the flow chart to help you.

19) 21 _____ 20) 347 _____ 21) 4,217 _____

22) 5,873 _____ 23) 870 _____ 24) 1,678 _____

25) 2,880 _____ 26) 9,071 _____ 27) 129,347 _____

There is one special case in rounding off. Look at this example. The letters used are from the flow chart on page 2.

Round to the nearest 100's

| | AB | | C | | D | | EF |
|---|---|---|---|---|---|---|---|
| 3964 - | 3964 | - | 3964 | - | 3964 | - | 3964 |
| | | | yes | | +1 | | |
| | | | | | (10) | | 3(10)C0 |

Notice that we have 10 in the hundreds place. We have to carry the one to the thousands place. Answer is 4000.

Try these. Round off to the nearest:

10's

28) 97 = _____ 29) 9 = _____

100's

30) 4,951 = _____ 31) 962 = _____

1000's

32) 9,982 = _____ 33) 19,751 = _____

Now do the following:

10's

34) 45 = 50 35) 3 = _____ 36) 7 = _____

37) 396 = _____

100's

38) 497 = _____ 39) 8218 = _____ 40) 39 = _____

41) 634 = _____

1000's

42) 9501 = _____ 43) 8760 = _____ 44) 4327 = _____

45) 823 = _____

10,000's

46) 132,291 = 130,000 47) 478,493 = _____ 48) 99,076 = _____

49) 6,457 = _____

100,000's

50) 132,291 = 100,000 51) 49,562 = _____

52) 62,000 = _____ 53) 987,602 = _____

1,000,000's

54) 132,291 = 0 55) 2,478,493 = _____

56) 675,000 = _____ 57) 4,070,998 = _____

Now do the following word problems involving rounding off:

1) How hot was it yesterday? Too hot! The thermometer read 94°. Was the temperature closer to 90° or 100° ? _____

2) Mr. Ward's gas and electric bill was $96.52 last month. How much was his bill rounded to the nearest whole dollar?

_____

3) Mrs. Bloodwell drives 32 miles to work each morning. How far does she drive rounded to the nearest 10 miles?

4) There are 246 students in the Math Demonstration Program. If someone asked you how many students are in the program, you would say about

a) 200 b) 250 c) 400

5) The cafeteria sold 1,193 chocolate chip cookies yesterday. This is about

a) 1,000 b) 1,500 c) 1,200 d) 2,000

There are 596 kids who bought cookies. About how many cookies did each kid buy?

a) 3 b) 2 c) 12

Name_____ Period_____ Date_____

| Objective: You will be able to write numbers in expanded form |
|---|

You have worked with place value and know the names. Here is a chart showing the first five.

| ten-thousands | thousands | hundreds | tens | ones |
|---|---|---|---|---|
| 3 | 7 | 6 | 5 | 4 |

The number shown is 37,654. In putting it together we have used 3 ten-thousands, 7 thousands, 6 hundreds, 5 tens and 4 ones. This could be written in expanded notation as
(3 x 10,000) + (7 x 1,000) + (6 x 100) + (5 x 10) + (4 x 1)

Written in compact form it is 37,654.

WRITE THE COMPACT FORM FOR EACH OF THE FOLLOWING:

1. (7 x 10) + (6 x 1) = _____
2. (3 x 10) + (3 x 1) = _____
3. (4 x 100) + (6 x 10) + (6 x 1) = _____
4. (3 x 10) + (9 x 1) = _____
5. (5 x 1000) + (6 x 100) + (7 x 10) + (8 x 1) = _____
6. (2 x 100) + (2 x 10) + (2 x 1) = _____
7. (3 x 1000) + (3 x 100) + (3 x 10) + (3 x 1) = _____
8. (8 x 10,000) + (9 x 1000) + (6 x 100) + (5 x 10) + (2 x 1) = _____

There are times when you need to use the expanded form.

326 in expanded form → (3 x 100) + (2 x 10) + (6 x 1)

405 in expanded form → (4 x 100) + (0 x 10) + (5 x 1)

**When "0" appears in a number, it is not necessary to show the expansion for that place since 0 times any number equals 0.**

**so 405 in expanded form (4 x 100) + (5 x 1)**

WRITE THESE NUMBERS IN EXPANDED FORM:

9. 345 = (____x 100) + (____x 10) + (____x 1)
10. 99 = (____x 10) + (____x 1)
11. 897 = (____x 100) + (____x 10) + (____x 1)
12. 3672 = (____x 1000) + (____x 100) + (____ x 10) + (____x 1)
13. 531 = _____
14. 1023 = _____
15. 607 = _____

WRITE THESE NUMBERS IN COMPACT FORM AND THEN IN EXPANDED FORM.

Note example 16.

16. Three thousand, four hundred thirty-four is

| compact form | expanded form |
|---|---|
| 3434 | (3 x 1000) = (4 x 100) + (3 x 10) + (4 x 1) |

17. Two hundred two is _____

18. Six hundred seventy-five is _____

19. Five thousand, seven hundred twenty-one is _____

20. Ten thousand, four hundred thirty-three is _____

21. Twenty-one thousand, two hundred twenty-two is _____

WRITE THESE NUMBERS IN EXPANDED FORM AND THEN AS A WORD STATEMENT

22. 666 is (6 x 100) + (6 x 10) + (6 x 1) = six hundred sixty-six

23. 202 is _____

24. 5986 is _____

25. 743 is _____

26. 37 is _____

27. 300 is _____

28. 96 is _____

29. 7,089 is _____

30. 2004 is _____

Name_____ Period_____ Date_____

Objective: You will be able to write a power in short form using exponents, raising to a power, and write a number in expanded form using exponents.

If the same number is used several times in multiplying, such as 2x2x2, we can use a symbol to say the same thing in a shorter form. 2x2x2 shows 2 being used 3 times as a factor and could be $2^3$. The 2 is the base or the factor being used. The 3 is called the exponent and tells how many times the factor is to be used in multiplication. $2^3$ is called the third power of 2.

$2^3 = 2 \times 2 \times 2 = 8$

$10^2 = 10 \times 10 = 100$

$5^3 = 5 \times 5 \times 5 = 125$

FINISH THESE EXERCISES

1. $3^3 = 3 \times 3 \times 3 =$ _____
2. $4^2 =$ _____ $= 16$
3. $2^{\_} = 2 \times 2 \times 2 \times 2 = 16$
4. $3^{\_} = 8 \times 8 =$ _____

The actual work involved in multiplying the factors is called raising a power.

$2^3 = (2 \times 2) \times 2 = 4 \times 2 = 8$

$5^3 = (5 \times 5) \times 5 = 25 \times 5 = 125$

FIND THESE POWERS BY RAISING TO A POWER

5. $3^4 =$ _____
6. $5^2 =$ _____
7. $2^2 =$ _____
8. $3^3 =$ _____
9. $5^1 =$ _____
10. $2^5 =$ _____

11. $10^2 =$ _____
    11a. What is the exponent_____
    b. How many zeroes in your answer?_____

12. $10^6 =$ _____
    12a. What is the exponent?_____
    b. How many zeroes in your answer?_____

13. $10^4 =$ _____
    13a. What is the exponent?_____
    b. How many zeroes in your answer? _____

Did you notice in problems 11-13 that both questions a and b had the same answer. The exponent tells you how many zeroes to write down after the one. This works only with powers of ten.

14. $10^5$ = 100,000 (The answer has 5 zeroes)

15. $10^3$ = _____ 16. $10^1$ = _____

17. $10^8$ = _____ 18. $10^0$ = _____

Our place value chart is also easily written using exponents. (see chart below)

| Ten thousands | thousands | hundreds | tens | ones |
|---|---|---|---|---|
| 10 x 10 x 10 x 10 or $10^4$ | 10 x 10 x 10 or $10^3$ | 10 x 10 or $10^2$ | 10 or $10^1$ | 1 or $10^0$ |

Starting on the left then, 10,000 could be written as $10^4$, 1000 as $10^3$, 100 as $10^2$, 10 as $10^1$, and 1 as $10^0$.

19. 100 = (10 x 10) = $10^{-}$ 20. 10 = (10) = $10^{-}$

Use exponents to give the expanded form of 234

234 = (2 x 100) + (3 x 10) + (4 x 1)

(2 x 10 x 10) + (3 x 10) + 4 x 1)

($2 \times 10^2$) + ($3 \times 10^1$) + ($4 \times 10^0$)

USE EXPONENTS AND GIVE THE EXPANDED FORM.

21. 536 = (__ x $10^2$) + (__ x $10^1$) + (__ x 1)

Since $10^0$ = 1, we will always use 1 to expand numerals

22. 3247 = (__ x __) + (__ x __) + (__ x __) + (__ x __)

23. 627 = (__ x __) + (__ x __) + (__ x __)

24. 6981 = (__ x __) + (__ x __) + (__ x __) + (__ x __)

25. 777 = (__ x __) + (__ x __) + (__ x __)

26. 502 = (__ x __) + (__ x __)

27. 6000 = (___ x ___)

28. 10,040 = (___ x ___) + (___ x ___)

29. 7,581 = _____

30. 9,100 = _____

Name _____ Period _____ Date _____

Level A Checkpoints 4 - 7

Round off to the nearest:

| | 10's | 100's |
|---|---|---|
| 1) | 49 = _____ | 327 = _____ |
| 2) | 3 = _____ | 81 = _____ |

(A-4)

Round off to the nearest:

| | 10's | 100's |
|---|---|---|
| 3) a. | 498 = _____ | 4) a. 350 = _____ |
| b. | 5372 = _____ | b. 976 = _____ |

| | 1000's | 100,000's |
|---|---|---|
| 5) a. | 149,821 = _____ | b. 597,638 = _____ |

(A-5)

6) Write 346 in expanded form. _____

7) Write the compact form of this expanded form:

(7 x 1000) + (8 x 100) + (4 x 10) + (5 x 1) = _____

(A-6)

8) a. $3^2$ = _____ b. $4^3$ = _____

9) a. $10^6$ = _____ b. $10^4$ = _____

10) Write in expanded form using exponents 3,782.

_____

(A-7)

Name _____ Period _____ Date _____

Level A A-Checkpoints 4 - 7

Round off to the nearest:

| | 10's | 100's |
|---|---|---|
| 1) | 79 = _____ | 427 = _____ |
| 2) | 8 = _____ | 82 = _____ |

(A-4)

Round off to the nearest:

| | 10's | 100's |
|---|---|---|
| 3) | a. 598 = _____ | 4) a. 1,749 = _____ |
| | b. 5,872 = _____ | b. 961 = _____ |

| | 1000's | 100,000's |
|---|---|---|
| 5) | a. 139,501 = _____ | b. 50,001 = _____ |

(A-5)

6) Write 1297 in expanded form. _____

7) Write the compact form of this expanded form.

(3 x 1000) + (2x 100) + (7 x 10) + (8 x 1) = _____

(A-6)

8) a. $5^3$ = _____ b. $4^2$ = _____

9) a. $10^1$ = _____ b. $10^5$ = _____

10) Write in expanded form using exponents 4,752.

(A-7) _____

POST-TEST LEVEL A

Introduction to Numbers

Name _____

Period _____

Date _____

In the following put an X in the box that correctly tells the place value of the circled numeral.

(1) 8(5)6
- ☐ five ones
- ☐ five tens
- ☐ five hundreds

(2) 91(7)
- ☐ seven ones
- ☐ seven tens
- ☐ seven hundreds

(3) (4)39
- ☐ four ones
- ☐ four tens
- ☐ four hundreds

(4) List the digit in the ten's place. 507 _____

(5) List the digit in the hundred's place. 507 _____

(6) Write this number using words. 645

_____

(A-1)

(7) Write this number using words. 7020

_____

(8) List the digit in the thousand's place. 13,482 _____

Place commas properly in:

(9) 38432

(10) 7650921

(A-2)

(11) Write the number for two hundred thousand forty-seven.

_____

(12) Write this number using words. 29,500

_____

3,047,825,169

List the digit above in the following places.

(13) Ten thousands place _____

(14) Hundred millions place _____

(14) Billions place _____

(A-3)

Circle which number these are closest to.

(16) 27 20 or 30

(17) 435 400 or 500

(A-4)

Round off to the nearest 10's.

(18) a. 3 = _____ b. 7 = _____

(19) a. 47 = _____ b. 62 = _____

(20) a. 85 = _____ c. 246 = _____

Round off to the nearest 100's.

(21) a. 49 = _____ b. 307 = _____

(22) a. 492 = _____ b. 53 = _____

(23) a. 984 = _____ b. 3451 = _____

Round off to the nearest 1000's.

(24) a. 3,945 = _____ b. 8,461 = _____

(25) a. 271 = _____ b. 325,657 = _____

(26) a. 9,863 = _____ b. 851 = _____

Round off to the nearest 10,000's.

(27) a. 356,413 = _____ b. 812 = _____

NAME _____

Post-test Level A (cont.)

Round off to the nearest 100,000's.

(28) a. 59,431 = _____ b. 3,587,521 = _____

Round off to the nearest 1,000,000's.

(29) a. 539,000 = _____ b. 5,671,872 = _____

(A-5)

(30) Write in expanded form. 475

( x ) + ( x ) + ( x ) _____

(31) Write in expanded form. 8326

_____

(32) Write in compact form.

(3 x 1000) + 7x 100) + (8 x 10) + (6 x 1) = _____

(A-6)

(33) $4^5$ Which number is the exponent? _____

| | Factors | | Final Answer |
|---|---|---|---|
| (34) $2^3$ = | 2 x 2 x 2 | = | _____ |
| (35) $7^2$ = | _____ | = | _____ |
| (36) $6^1$ = | _____ | = | _____ |
| (37) $10^2$ = | _____ | = | _____ |
| (38) $10^6$ = | _____ | = | _____ |
| (39) ___ = | _____ | = | 100,000 |

(40) Write in expanded form using exponents.

9,932 = ( x ) + ( x ) + ( x ) + ( x )

(41) 70,002 = ( x ) + ( x )

(A-7)

LEVEL REVIEW A

Name_____ Period_____ Date_____

In the following put an X in the box that correctly tells the place value of the circled numeral.

1) 2 (7) 0

- ☐ seven ones
- ☐ seven tens
- ☐ seven hundreds

2) (9) 8 1

- ☐ nine ones
- ☐ nine tens
- ☐ nine hundreds

(A-1)

Write in words the following numbers.

3) 340 _____ (A-1)

4) 7,020,001 _____ (A-3)

6,701,358,924

What digit above is in the following places?

5. a) tens place _____ (A-1) b) billions place _____ (A-3)

Round off to the nearest:

6. 79 = _____ (10's) 427 = _____ (100's) (A-4)

7. 139,501 = _____ (1000's) 50,001 = _____ (100,000's) (A-5)

8. Write 1297 in expanded form.

_____ (A-6)

9. a) $5^3$ = _____ b) $4^2$ = _____

10. Write in expanded form using exponents 4,752.

_____ (A-7)

PRE-TEST Level B

Name _____

Period _____

ADDITION OF WHOLE NUMBERS

Date _____

1. $5 + 3 =$ _____

2. $9 + 6 =$ _____

3. $8 + 9 =$ _____

4. $4 + 0 =$ _____

5. The sign "+" means to _____.

(B-1)

6.
$$\begin{array}{r} 9 \\ 8 \\ 5 \\ +\ 4 \\ \hline \end{array}$$

7. Find the sum of 8, 4, 3, 7 _____

8.
$$\begin{array}{r} 6 \\ +\ 2 \\ \hline 8 \end{array}$$

Name an addend _____

Name the sum _____

(B-1)

9.
$$\begin{array}{r} 40 \\ 33 \\ +\ 20 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 731 \\ +\ 446 \\ \hline \end{array}$$

11.
$$\begin{array}{r} 134 \\ +\ 827 \\ \hline \end{array}$$

(B-3)

12.
$$\begin{array}{r} 908 \\ 1275 \\ +\ 239 \\ \hline \end{array}$$

13.
$$\begin{array}{r} 628 \\ 586 \\ +\ 497 \\ \hline \end{array}$$

14.
$$\begin{array}{r} 128 \\ 259 \\ 341 \\ +\ 153 \\ \hline \end{array}$$

(B-4)

15.
$$\begin{array}{r} 1287 \\ 4568 \\ +\ 3729 \\ \hline \end{array}$$

16.
$$\begin{array}{r} 38 \\ 172 \\ 5607 \\ +\ 47 \\ \hline \end{array}$$

17.
$$\begin{array}{r} 10451 \\ 9308 \\ 35793 \\ +\ 1492 \\ \hline \end{array}$$

(B-5)

Name _____

PRE-TEST LEVEL B ( cont. )

18. 38 cats, 19 dogs, 138 mice, what is the total number of animals? _____

19. 67 pencils, 3,024 sheets of paper, 4 pens, 397 paper clips

Total number of objects _____

20. 213 blue marbles, 141 red marbles, 637 green marbles

Total number of marbles _____

21. Who won the baseball game? _____

BASEBALL SCOREBOARD

| | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | total |
|---|---|---|---|---|---|---|---|---|---|---|
| REDS | 0 | 3 | 0 | 2 | 1 | 0 | 1 | 0 | 3 | |
| GIANTS | 2 | 1 | 0 | 0 | 0 | 4 | 2 | 1 | 1 | |

(B-6)

22. 3 + 4 7 + 5,1 4 7 + 9 8 7 = _____

23. 3 9 + 1 7 1 + 8 + 5,2 8 6 = _____

24. 6,4 7 0 + 5 7 + 7 5 1 + 8 3 +4 2 0 = _____

25. 5, 0 9 1 + 1,0 0 0 + 5,3 1 9 + 4 5 2 = _____

(B-7)

ADDITION OF WHOLE NUMBERS B-1

Name_____
Date_____
Period_____

| Objective: | You will be able to: Add two whole numbers, zero through nine. |
|---|---|

Addition is used to combine two or more groups.

(1) The sign " + " is read plus and means to add.
The sign " + " is read plus and means to _____.

(2) 3 + 4 = _____ This is an addition equation.

(3) Write an Addition Equation to combine the following groups.

a) ⁘ + ⁘ = ⁘ 2 + 3 = 5

b) ⁘ + ⁘ = _____

c) • + •• = _____

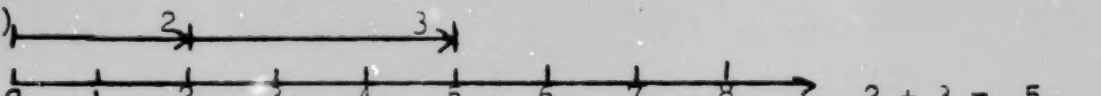
(4) Fill in dots to make a picture of the Addition Equations.

a) 4 + 2 = 6 + =

b) 3 + 1 = 4 + =

c) 0 + 5 = 5 + =

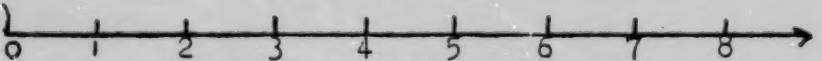
The number line may be used to show addition.
Graph 5 shows that 2 + 3 = 5. Draw the graphs that show the addition problems on the right.

(5) 

2 + 3 = 5

(6)

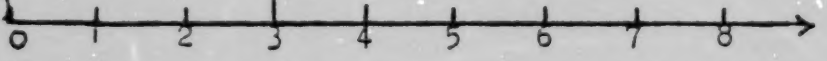
3 + 5 = _____

(7) 

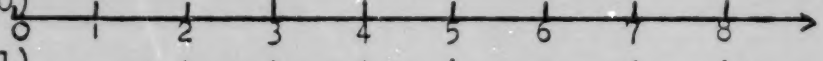
5 + 3 = _____

(8)

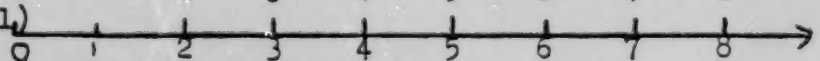
5 + 0 = _____

(9) 

5 + 1 = _____

(10) 

4 + 3 = _____

(11) 

3 + 4 = _____

Name _____

(12) Now look at equations 10 and 11. What is the sum in both equations? _____

(13) Are the numbers, or addends, that are being added, in the same order? _____

(14) Will 4 + 3 always equal 3 + 4? _____

Write an equation and give the sum as an answer:

(15) 3 boys, 4 girls, how many in the class?
Equations 3 + 4 = Answer _____

(16) 2 dollars, 4 dollars, how many dollars?
Equation 2 + 4 = Answer _____

(17) 3 dogs, 1 dog, how many dogs?
Equation _____ Answer _____

(18) 2 baggies, _____ baggies, 7 baggies in all, how many more baggies needed? _____
Equation 2 + =7 Answer _____

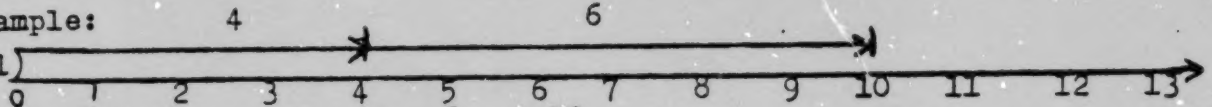
(19) _____ lost kittens, 3 safe kittens, 5 kittens in all, how many lost kittens? _____
Equation _____ + _____ = _____ Answer _____

(20) 3 birds present, _____ birds absent, 6 birds in all, how many birds absent? _____
Equation _____ + _____ = _____ Answer _____

Now let's work on the addition facts through 9. The number line can help us find the sums. Here's an example for you to follow.

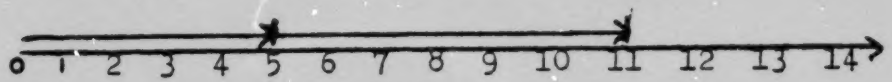
Example:

(21)



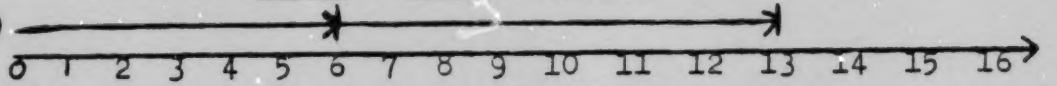

Equation: 4 + 6 = 10

(22)



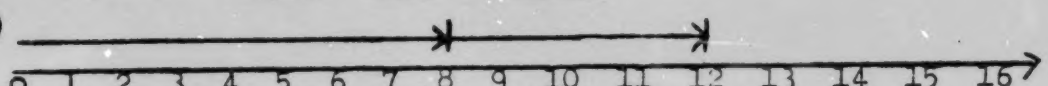

Equation: _____ + _____ = _____

(23)




Equation: _____ + _____ = _____

(24)




Equation: _____ + _____ = _____

# ADDITION OF WHOLE NUMBERS B-2

Name _____ Period _____ Date _____

**Objective:** You will be able to add several addends and know the terms addend and sum.

If you can find these sums correctly, you are making good progress. To add 3 or more numbers, you add any two numbers first and that answer to the next addend, etc.

(1) 2 + 6 + 7 = 15 (8)

(2) 5 + 4 + 9 = _____

(3) 8 + 3 + 6 = _____

(4) 7 + 7 + 3 = _____

(5) 9 + 1 + 8 = _____

(6) 6 + 5 + 1 = _____

(7) 2 + 6 + 4 + 3 + 5 = _____

(8) 5 + 4 + 8 + 6 + 4 = _____

(9) 9 + 7 + 6 + 8 + 4 = _____

(10) 5 + 8 + 3 + 6 + 4 = _____

(11) 5 + 7 + 3 + 6 + 5 = _____

(12) 6 + 7 + 7 + 3 + 5 = _____

(13) 1 + 4 + 7 + 6 + 3 = _____

(14) 2 + 5 + 7 + 3 + 2 = _____

(15) 8 + 6 + 5 + 2 + 6 = _____

(16) 8 + 7 + 1 + 4 + 7 = _____

(17) 1 + 9 + 8 + 2 + 7 = _____

(18) 8 + 9 + 3 + 2 + 5 = _____

More at Addition Equations

3 + 3 = 7
addend addend sum

3 addend
+ 4 addend
7 sum

(19) In the equation 5 + 4 = 9, Which numbers are the addends? _____

(20) What is the sum? _____

(21) What is the sum of 4 + 5? _____

(22) Is the sum the same as 5 + 4? _____

(23) If 2 numbers are to be added, we may change the order without changing the sum. T or F

(24) The answer to an addition problem is called the _____.

(25) The numbers that are added are called the _____.

Name:_____, Period_____Date_____

**Objective:** You will be able to do addition problems with carries.

Now that you can add one digit numbers, you are ready to go on to numbers of any size.

IMPORTANT:

Add in columns and start on the right side.

$$\begin{array}{r} 12 \\ +\ 15 \\ \hline 27 \end{array}$$

Another way to think about addition is:

$$\begin{array}{r} 12 = 10 + 2 \\ +\ 15 = 10 + 5 \\ \hline 27 = 20 + 7 \end{array}$$

Add:

(1) $\begin{array}{r} 23 \\ +\ 15 \\ \hline \end{array}$ (2) $\begin{array}{r} 29 \\ +\ 30 \\ \hline \end{array}$ (3) $\begin{array}{r} 11 \\ +\ 53 \\ \hline \end{array}$ (4) $\begin{array}{r} 10 \\ 12 \\ +\ 33 \\ \hline \end{array}$

(5) $\begin{array}{r} 231 \\ 134 \\ +\ 222 \\ \hline \end{array}$ (6) $\begin{array}{r} 40 \\ 100 \\ +\ 155 \\ \hline \end{array}$ (7) $\begin{array}{r} 40 \\ 33 \\ 6 \\ +\ 20 \\ \hline \end{array}$

If the sum of a column is more than one digit (that is, greater than 9) remember to "carry" to the next column.

Example A:

$$\begin{array}{r} 35 = 30 + 5 \\ +\ 35 = 30 + 5 \\ \hline 60 + 10 = 70 \end{array} \qquad \begin{array}{r} 35 \\ +\ 35 \\ \hline 70 \end{array}$$

Example B:

$$\begin{array}{r} 42 = 40 + \_\_\_\_ \\ 57 = 50 + \ 7 \\ +\ 33 = \ \ + \ 3 \\ \hline 120 + 12 = 120 + 10 + 2 \end{array} \qquad \begin{array}{r} 42 \\ 57 \\ +\ 33 \\ \hline 132 \end{array}$$

Find these sums:

(8) $\begin{array}{r} 18 \\ +\ 2 \\ \hline \end{array}$ (9) $\begin{array}{r} 5 \\ +\ 2 \\ \hline \end{array}$ (10) $\begin{array}{r} 66 \\ +\ 44 \\ \hline \end{array}$ (11) $\begin{array}{r} 55 \\ +\ 66 \\ \hline \end{array}$

Find these sums:

(12)
$$\begin{array}{r} 23 \\ 24 \\ 25 \\ +\ 26 \\ \hline \end{array}$$

(13)
$$\begin{array}{r} 80 \\ 99 \\ +\ 11 \\ \hline \end{array}$$

(14)
$$\begin{array}{r} 58 \\ 24 \\ +\ 12 \\ \hline \end{array}$$

(15)
$$\begin{array}{r} 75 \\ 25 \\ +\ 50 \\ \hline \end{array}$$

If there are 3 or more columns, "carry" is continued.

Example C:

Step 1
$$\begin{array}{r} (1) \\ 3\ 4\ 5 \\ +\ 6\ 6\ 7 \\ \hline 2 \end{array}$$

Step 2
$$\begin{array}{r} (1)(1) \\ 3\ 4\ 5 \\ +\ 6\ 6\ 7 \\ \hline 1\ 2 \end{array}$$

Step 3
$$\begin{array}{r} (1)(1) \\ 3\ 4\ 5 \\ +\ 6\ 6\ 7 \\ \hline 1\ 0\ 1\ 2 \end{array}$$

Find these sums:

(16)
$$\begin{array}{r} 444 \\ +\ 666 \\ \hline \end{array}$$

(17)
$$\begin{array}{r} 642 \\ +\ 529 \\ \hline \end{array}$$

(18)
$$\begin{array}{r} 347 \\ +\ 763 \\ \hline \end{array}$$

(19)
$$\begin{array}{r} 333 \\ 247 \\ +\ 665 \\ \hline \end{array}$$

(20)
$$\begin{array}{r} 111 \\ 888 \\ 999 \\ +\ 202 \\ \hline \end{array}$$

(21)
$$\begin{array}{r} 731 \\ 173 \\ +\ 458 \\ \hline \end{array}$$

Pick up speed:

In adding terms together there are some easy combinations you should know. These are put together by grouping. The easiest grouping is by 10.

Notice: 3 + 5 + 7 + 1 =

Grouping the 3 and 7 together gives 10 + 5 + 1 = _____

Group by 10 where possible and give the sum.

(22) $8 + \overbrace{7 + 3}^{10} =$ _____ = _____

(23) $\overbrace{8 + 7 + 3 + 2}^{10} =$ _____

(24) $\overbrace{9 + 6 + 1 + 4} =$ _____

(25)
$$\begin{array}{r} 7 \\ 6 \\ 5 \\ 4 \\ 3 \\ \hline \end{array}$$

(26)
$$\begin{array}{r} 8 \\ 6 \\ 6 \\ 2 \\ 4 \\ \hline \end{array}$$

(27)
$$\begin{array}{r} 1 \\ 7 \\ 9 \\ 8 \\ 3 \\ \hline \end{array}$$

(28)
$$\begin{array}{r} 19 \\ 32 \\ 41 \\ 38 \\ \hline \end{array}$$

# ADDITION OF WHOLE NUMBERS B - 4

Name _____ Period _____ Date _____

Objective: You will be able to add columns of numbers involving "carrying".

Addition:

Examples:

carry (1)
19
+ 29
48

carry (1)
28
+ 38
66

(1) ( )
67
+ 11

(2) ( )
34
+ 26

(3) ( )
29
+ 56

(4) ( )
23
45
+ 18

(5) ( )
47
31
+ 14

(6) ( )
24
39
+ 24

(7) ( )
65
14
+ 23

(8) ( )
67
14
+ 23

(9) ( )
329
+ 139
568

(10) ( )
235
+ 148

(11) 327
+ 348

(12) 305
+ 609

(13) 218
+ 438

(14) 249
+ 329

(15) 418
+ 239

(16) 172
+ 218

(17) 471
+ 139

Examples:

carry (1)
237
+ 382
619

carry (1)
631
+ 583
1214

(18) 471
+ 893

(19) 426
+ 380

(20) 165
+ 583

(21) 373
+ 586

(22) 781
+ 654

(23) 552
+ 195

(24) 463
+ 390

(25) 264
+ 371

(26) 346
+ 391

(27) 530
+ 196

(28) 250
+ 183

| (29) | (30) | (31) | (32) | (33) |
|---|---|---|---|---|
| 183 | 375 | 172 | 611 | 340 |
| + 254 | + 381 | 331 | 140 | 48 |
| | | + 482 | 154 | 210 |
| | | | + 70 | + 241 |

Example:

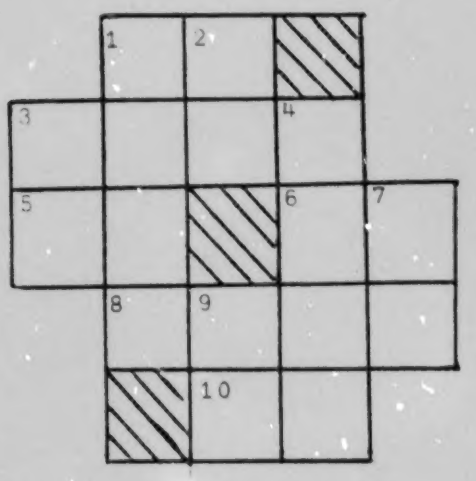
(1)(1)
3 6 8
+ 3 6 8
7 5 6

| (34) | (35) | (36) | (37) |
|---|---|---|---|
| 786 | 648 | 596 | 286 |
| + 154 | + 179 | + 148 | + 357 |

| (38) | (39) | (40) | (41) |
|---|---|---|---|
| 286 | 268 | 123 | 129 |
| + 857 | + 255 | + 187 | + 171 |

| (42) | (43) | (44) | (45) |
|---|---|---|---|
| 456 | 315 | 245 | 128 |
| + 544 | 234 | 137 | 259 |
| | + 578 | + 156 | 341 |
| | | | + 151 |

CROSS NUMBER PUZZLE




| Across | Down |
|---|---|
| 1. 37 + 48 | 1. 3,754 + 4,789 |
| 3. 3,696 + 3,867 | 2. 18 + 38 |
| 5. 27 + 57 | 3. 29 + 49 |
| 6. 29 + 47 | 4. 1,845 + 1,896 |
| 8. 1,798 + 1,845 | 7. 26 + 37 |
| 10. 25 + 26 | 9. 17 + 48 |

Name_____Period_____Date_____

Level B  Checkpoints 1-4

1. The sign "+" means to _____.

2. 4 + 5 = _____

3. 4 dogs and 2 dogs, How many dogs? _____

(B-1)

4.
$$\begin{array}{r} 8 \\ 5 \\ 4 \\ +\ 7 \\ \hline \end{array}$$

5. What is the sum of 5,7,6 ? _____

6.
$$\begin{array}{r} 6 \\ +\ 2 \\ \hline 8 \end{array}$$

Which number(s) are the addends?
_____

Which number(s) are the sum? _____

(B-2)

7.
$$\begin{array}{r} 40 \\ 33 \\ 6 \\ +\ 24 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 731 \\ 173 \\ +\ 458 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 245 \\ 456 \\ +\ 544 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 128 \\ 259 \\ 341 \\ +\ 151 \\ \hline \end{array}$$

(B-3,4)

Name_____Period_____Date_____

Level B A- Checkpoints 1-4

1. The sign "+" means to _____.

2. 3 + 5 = _____

3. 2 dollars and 6 dollars, How many dollars? _____

(B-1)

4.
$$\begin{array}{r} 9 \\ 7 \\ 6 \\ +\ 5 \\ \hline \end{array}$$

5. What is the sum of 8,2,6? _____

6.
$$\begin{array}{r} 5 \\ +\ 4 \\ \hline 9 \end{array}$$

Which number(s) are the sum?_____

Which number(s) are the addends?

_____

(B-2)

7.
$$\begin{array}{r} 37 \\ 40 \\ +\ 12 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 631 \\ 163 \\ +\ 459 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 349 \\ 456 \\ +\ 633 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 129 \\ 260 \\ 431 \\ +\ 363 \\ \hline \end{array}$$

(B-3,4)

Name _____ Period _____ Date _____

**Objective: You will be able to add whole numbers of any size.**

When adding large numbers, we may find that we must carry.

| | |
|---|---|
| 1 5 3 7 = 1000 + 500 + 30 + 7 | 3 7 2 9 = 3000 + 700 + 20 + 9 |
| + 5 6 3 2 = 5000 + 600 + 30 + 2 | +1 6 4 3 = 1000 + 600 + 40 + 3 |
| 7 1 6 9 = 6000 +1100 + 60 + 9 | 5 3 7 2 = 4000 +1300 + 60 +12 |

The same problems done the shortcut way.

| | |
|---|---|
| (1) | (1) (1) |
| 1 5 3 7 | 3 7 2 9 |
| + 5 6 3 2 | + 1 6 4 3 |
| 7 1 6 9 | 5 3 7 2 |

Find the sums of the following:

(1) 5163 + 2372

(2) 1394 + 6254

(3) 2583 + 5271

(4) 4936 + 2512

(5) 2920 + 4651

(6) 4261 + 2148

(7) 5385 + 3164

(8) 4792 + 4020

Many times we must carry more than one ten or more than one hundred. (Complete these problems.)

Carries - (2)(2)

3 9 8
2 7 7
1 5 6

300 + 90 + 8
200 + 70 + 7
100 + 50 + 6
600 + 210 + 21 = _____

(9) 2 6 7
3 7 9
2 7 5

(10) 3 4 9
1 8 8
6 8 7

(11) 4 6 9
1 6 6
1 6 6

(12) 1 9 1
3 6 2
1 8 2

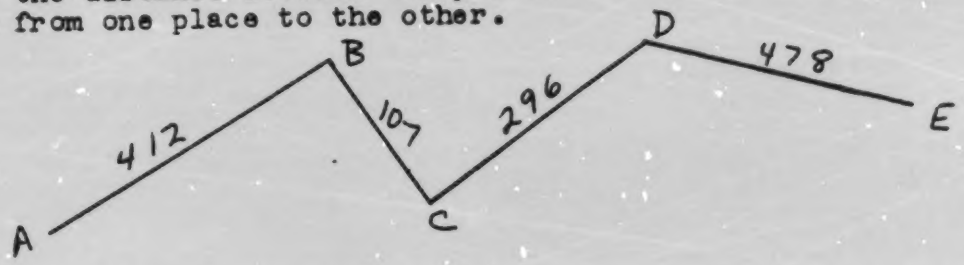
(13) 4 5 4
1 7 0
2 9 0

(14) 3 8 4
1 3 4
1 7 9

(15) 2 6 9
1 7 4
4 8 8

Name _____

The letters in the figure represent places on a map. The numbers are the distance between the places. You must follow the lines to get from one place to the other.




(16) How far is it from A to C? _____

(17) How far is it from B to D? _____

(18) How far is it from B to E? _____

(19) How far is it from A to E? _____

Complete these patterns:

Example:

30 + 6 = 36
40 + 4 = 44
50 + 2 = 52
120 +12 =132

(20)

50 + 6 = _____
70 + 2 = _____
40 + 5 = _____
___ + ___ = _____

(21)

100 + 20 + 5 = _____
500 + 40 + 8 = _____
700 + 60 + 7 = _____
___ + ___ + ___ = _____

(22)

30 + ___ = 36
___ + 9 = 59
60 + 5 = ___
___ + ___ = ___

(23)

70 + 30 + ___ = 106
___ + 20 + 8 = 78
90 + 40 + 5 = ___
___ + ___ + ___ = ___

Magic squares are the arrangement of numbers in patterns so that the sum of each row, of each column and of each diagonal is always the same.

Fill in the missing numbers in each magic square.

| | | | |
|---|---|---|---|
| 4 | | 2 | 15 |
| 3 | 5 | 7 | 15 |
| 8 | 1 | | 15 |
| 15 | 15 | 15 | 15 |

| | | | | |
|---|---|---|---|---|
| 1 | 15 | 14 | | 34 |
| 12 | | | 9 | 34 |
| 8 | | 11 | 5 | 34 |
| | 3 | 2 | 16 | 34 |
| 34 | 34 | 34 | 34 | 34 34 |

# ADDITION OF WHOLE NUMBERS B - 6

Name _____ Period _____ Date _____

**Objective:** You will be able to: Solve problems dealing with addition.

Review of addition:

(1)
$$\begin{array}{r} 2 \\ 3 \\ +\ 8 \\ \hline \end{array}$$

(2)
$$\begin{array}{r} 9 \\ 8 \\ +\ 1 \\ \hline \end{array}$$

(3)
$$\begin{array}{r} 19 \\ 28 \\ +\ 61 \\ \hline \end{array}$$

(4)
$$\begin{array}{r} 32 \\ 127 \\ +\ 63 \\ \hline \end{array}$$

(5) Find the sum of 6 and 4 _____

(6) The sign "+" means to _____

(7) Numbers that are added together are called _____

(8) Find the total of 5 and 3 _____

Practice carrying:

Example A

Step 1
$$\begin{array}{r} (1) \\ 3\ 6 \\ +\ 4\ 5 \\ \hline 1 \end{array}$$

Step 2
$$\begin{array}{r} (1) \\ 3\ 6 \\ +\ 4\ 5 \\ \hline 8\ 1 \end{array}$$

Example B

Step 1
$$\begin{array}{r} (1) \\ 2\ 9 \\ 3\ 6 \\ +\ 4\ 2 \\ \hline 7 \end{array}$$

Step 2
$$\begin{array}{r} (1) \\ 2\ 9 \\ 3\ 6 \\ +\ 4\ 2 \\ \hline 1\ 0\ 7 \end{array}$$

Find these sums:

(9)
$$\begin{array}{r} 111 \\ +\ 999 \\ \hline \end{array}$$

(10)
$$\begin{array}{r} 23 \\ +\ 38 \\ \hline \end{array}$$

(11)
$$\begin{array}{r} 97 \\ 36 \\ +\ 42 \\ \hline \end{array}$$

(12)
$$\begin{array}{r} 97 \\ 42 \\ +\ 36 \\ \hline \end{array}$$

(13)
$$\begin{array}{r} 591 \\ 39 \\ +\ 47 \\ \hline \end{array}$$

(14)
$$\begin{array}{r} 3 \\ 971 \\ +\ 36 \\ \hline \end{array}$$

Group by tens then add:

(15) 37 + 8 + 3 + 2 = _____

(16) 9 + 6 + 1 + 4 + 9 = _____

(17) 17 + 12 + 13 + 18 + 9 = _____

(18) 8 + 6 + 4 + 0 + 2 + 11 = _____

19. 20 + 30 + 80 + 70 + 25 = _____

20. 53 + 47 + 50 = _____

21. The 6 periods of classes at Hillview Junior High School are 50 minutes, 50 minutes, 50 minutes, 50 minutes, 50 minutes, and 50 minutes. How many minutes do students spend in class? _____

22. Young Bill wants to go to a football game several miles from his home. He rode a bus for 12 miles and walked the remaining 3 miles. How far did he travel? _____

23. James spent 52 cents for candy, 14 cents for gum and 21 cents for mints. How much did he spend? _____

24. John sells newspaper on a downstreet. Monday he sold 53, on Tuesday 41, on Wednesday 59, on Thursday 37, on Friday 61 and on Saturday 76. Find the total number of newspaper he sold for the week. _____

25. Three boys have a contest to see who can read the greatest number of pages in a week. Here are the results.

| | JOHN | MARK | BILL |
|---|---|---|---|
| Monday | 73 | 23 | 110 |
| Tuesday | 22 | 72 | 69 |
| Wednesday | 102 | 100 | 62 |
| Thursday | 68 | 56 | 71. |
| Friday | 79 | 82 | 20 |
| TOTALS | _____ | _____ | _____ |

Name the winner: _____.

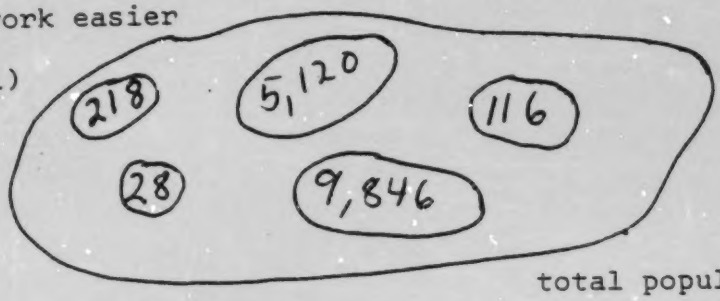
# ADDITION OF WHOLE NUMBERS B-7

Name _____ Period _____ Date _____

**Objective: You will be able to solve problems using addition**

The figure below represents a map of several towns. Each circle gives the population of the town. What is the total population of all the towns? Careful placing of the digits will make your work easier

1)




Add here

_____
_____
_____
_____
\+ _____

total population: _____

To add horizontal numbers, you may write them in vertical form (up and down) before you start to add. The first one is done for you.

2) 47 + 324 + 1001 + 12 =

Vertical form

47
324
1001
\+ 12
_____

3) 8,396 + 476 + 2 + 29 =

Vertical form

\+ _____

4) 3 + 3,947 + 85 + 27 =

Vertical form

\+ _____

5) 29 + 8,002 + 476 + 9 =

Vertical form

\+ _____

6) 392 + 8 + 39 + 4 =

Vertical form

\+ _____

7) 897 + 5672 + 2 + 500 =

Vertical form

\+ _____

Shorties:

8) 29 tall boys, 397 medium boys, 3 short boys. How many boys in all ? _____

9) 4,392 lbs of beans, 85 lbs of corn bread, 4 lbs of meat, 8,782 lbs of water. How many lbs (pounds) in this meal?

_____

10) 18 students in period one,7 students in period two, 14 students in period three, 16 students in period four, and 19 students in period five. How many students are there all together?

_____

11) Bus A - 60 people, bus B - 29 people, bus C - 41 people, bus D - 3 people. How many people on all the buses? _____

12) $40 gas bill, $130 rent bill, $20 water bill, $150 food bill, $10 phone bill, $50 medical bill. How much money was spent on all these bills? _____

13) 43 + 57 + 61 + 35 = _____

14) 6 + 7 + 5 + 8 + 9 = _____

15) 98 + 203 + 451 = _____

16) 169 + 273 + 75 + 125 = _____

17) 171 + 283 + 62 + 273 = _____

18) 16 + 17 + 18 + 19 + 20 = _____

19) 1000 + 100 +10 + 1 = _____

20) 9,000 + 9 + 90 + 900 = _____

Name_____ Period_____ Date_____

Level B Checkpoints 5-7

Addition of Whole Numbers

1. 46925
+ 35713

(B-5)

2. John spent 47¢ for candy, 15¢ for gum and 58¢ for milk. How much did he spend?

_____ (B-6)

3.

SCOREBOARD

| Bill | Diane |
|---|---|
| 27 | 32 |
| 15 | 12 |
| 36 | 29 |
| 7 | 15 |

Who has the larger score Diane or Bill ? _____

(B-6)

4. 2 9 + 8,1 3 2 + 4 5 7 + 4,5 1 9 = _____

5. 7 2 1 + 1 0,2 4 5 + 4 + 4,9 5 1 = _____

(B-7)

Name_____ Period_____ Date_____

Level B A- Checkpoints 5-7

Addition of Whole Numbers

1. 8 7 5 4 0 9
+ 3 4 8 6 7 3

(B-5)

2. Sally spent 43¢ for bread, 67¢ for milk, and 37¢ for cheese. How much did she spend? _____

(B-6)

3. Who caught the most fish, Joan or Linda? _____

| | Monday | Tuesday | Wednesday | Thursday | Friday |
|---|---|---|---|---|---|
| Joan | 3 | 4 | 0 | 3 | 4 |
| Linda | 2 | 1 | 6 | 4 | 2 |

(B-6)

4. 1 3 2 + 4 5,4 5 1 + 9 + 4 1 = _____

5. 7 2 3 + 3 + 1 4 7,6 4 5 + 2 3,0 0 1 = _____

(B-7)

POST TEST LEVEL B

Addition of Whole Numbers

Name _____

Period _____

Date _____

1. 2 + 4 = _____

2. 9 + 7 = _____

3. 8 + 5 = _____

4. 0 + 6 = _____

5. The sign "+" means to _____

(B-1)

6.
$$\begin{array}{r} 8 \\ 6 \\ 3 \\ +\ 7 \\ \hline \end{array}$$

7. Find the sum of 7, 6, 5, and 9. _____

8.
$$\begin{array}{r} 7 \\ +\ 1 \\ \hline 8 \end{array}$$

Name an addend _____

Name the sum _____

(B-2)

9.
$$\begin{array}{r} 40 \\ 34 \\ +\ 25 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 632 \\ +\ 346 \\ \hline \end{array}$$

11.
$$\begin{array}{r} 134 \\ +\ 728 \\ \hline \end{array}$$

(B-3)

12.
$$\begin{array}{r} 809 \\ 2175 \\ +\ 392 \\ \hline \end{array}$$

13.
$$\begin{array}{r} 627 \\ 586 \\ +\ 495 \\ \hline \end{array}$$

14.
$$\begin{array}{r} 218 \\ 592 \\ 341 \\ +\ 511 \\ \hline \end{array}$$

(B-4)

15.
$$\begin{array}{r} 2871 \\ 5684 \\ +\ 2793 \\ \hline \end{array}$$

16.
$$\begin{array}{r} 38 \\ 1072 \\ 405 \\ +\ 74 \\ \hline \end{array}$$

17.
$$\begin{array}{r} 10451 \\ 9803 \\ +\ 1429 \\ \hline \end{array}$$

(B-5)

PostTest Level B (cont.) Name _____

18. 8 3 mice, 2 7 dogs, 1 8 cats, How many animals? _____

19. 6 2 meters, 2 8 meters, 3 9 7 meters, how many meters? _____

20. 3 7 1 red pencils, 2 8 5 blue pencils, 4 0 5 green pencils,
How many pencils are there? _____

21. QUIZAMATIC SCORES

| | 1st Game | 2nd Game | 3rd Game | 4th Game |
|---|---|---|---|---|
| Team A | 9 | 10 | 6 | 10 |
| Team B | 10 | 7 | 10 | 7 |

Which team scored the most points? _____

(B-6)

22. 3 + 7 4 + 5, 0 9 2 + 3 7 = _____

23. 1 1, 9 7 5 + 8 0 7 + 2, 0 0 1 = _____

24. 6 3 + 7 7 8 + 5 2 = _____

25. 5 3 , 7 9 2 + 4, 6 8 3 + 8, 7 5 1 = _____

(B-7)

# LEVEL REVIEW B

Name_____ Period_____ Date_____

1. The sign "+" means to _____.

2. 2 dollars and 6 dollars, How many dollars?_____

(B-1)

3. What is the sum of 8, 2, 6?_____

4.
$$\begin{array}{r} 5 \\ +\ 4 \\ \hline 9 \end{array}$$

Which number (s) are the sum?_____

Which number (s) are the addends_____

(B-2)

5.
$$\begin{array}{r} 129 \\ 260 \\ 431 \\ +\ 363 \\ \hline \end{array}$$

(B-3,4)

6.
$$\begin{array}{r} 875409 \\ +\ 348673 \\ \hline \end{array}$$

(B-5)

7. Sally spent 43¢ for bread, 67¢ for milk, and 37¢ for cheese, How much did she spend?_____

8. Who caught the most fish, Joan or Linda?_____

| | Monday | Tuesday | Wednesday | Thursday | Friday |
|---|---|---|---|---|---|
| Joan | 3 | 4 | 0 | 3 | 4 |
| Linda | 2 | 1 | 6 | 4 | 2 |

(B-6)

9. 132 + 45,451 + 9 + 41 = _____

10. 723 + 3 + 147,645 + 23,001 = _____

(B-7)

Name _____ Period _____ Date _____

Pre-Test Level C  Subtraction of Whole Numbers

1. $\begin{array}{r} 8 \\ -\ 3 \\ \hline \end{array}$

2. $\begin{array}{r} 6 \\ -\ 6 \\ \hline \end{array}$

3. $\begin{array}{r} 5 \\ -\ 0 \\ \hline \end{array}$

(C-1)

4. $\begin{array}{r} 76 \\ -\ 46 \\ \hline \end{array}$

5. $\begin{array}{r} 54 \\ -\ 20 \\ \hline \end{array}$

6. 37 - 6 = _____

(C-2)

7. $\begin{array}{r} 43 \\ -\ 19 \\ \hline \end{array}$

8. 31 - 13 = _____

9. 87 - 28 = _____

(C-3)

10. 982 - 461 = _____

11. $\begin{array}{r} 865 \\ -\ 323 \\ \hline \end{array}$

12. $\begin{array}{r} 982 \\ -\ 382 \\ \hline \end{array}$

(C-4)

13. $\begin{array}{r} 327 \\ -\ 238 \\ \hline \end{array}$

14. $\begin{array}{r} 322 \\ -\ 114 \\ \hline \end{array}$

15. $\begin{array}{r} 983 \\ -\ 695 \\ \hline \end{array}$

(C-5)

Pre-Test (cont.)

16. 1 6 0
- 1 4 2

17. 9 8 0
- 1 8 2

18. 7 0 4
- 6 8 5

19. There are 5 0 0 0 people in town. 3 6 7 are sixty five years old or older. How many people in town are less than sixty five? _____

20. I ordered 2 0 0 0 pounds of gravel, but received 2 2 5 1 pounds. How many pounds more than I ordered did I receive?

_____

21. Matching use the correct letter

23 ← ____
-14 ← ____
9 ← ____

a) subtrahend b) difference
c) product d) minuend

(C-6)

22. 3 0 0 0
- 2 9 8 1

23. 4 0 0 1 0
- 3 0 0 0

24. 4 0 9 0 1
- 2 8 7 6 2

25. 2 0 0 1 0
- 1 9 8 1 9

26. 4 5 9 6 0 0
- 3 6 7 8 2 1

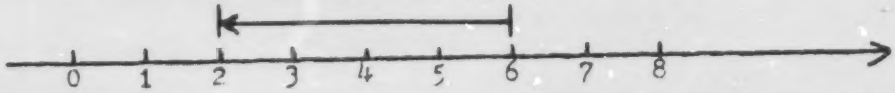
(C-7)

SUBTRACTION OF WHOLE NUMBERS C - 1

Name:_____ Period:_____ Date:_____

Objective: You will be able to subtract any single digit number from a greater or equal single digit number.

(1) Begin at 6 and go 4 units to the left. What number did you stop on?_____

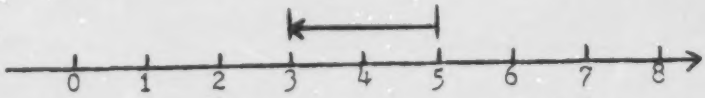



(2) A subtraction equation could be written to show the same thing. 6 - 4 = _____

Write a subtraction equation for each number line problem.

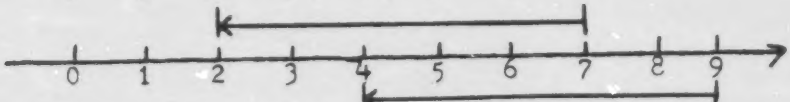
Equation

(3)



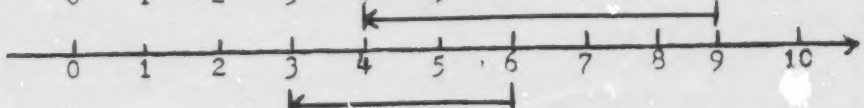

_____

(4)



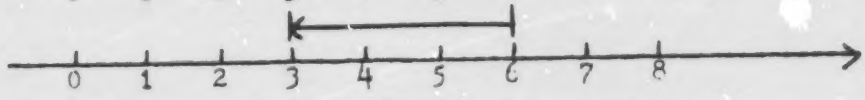

_____

(5)



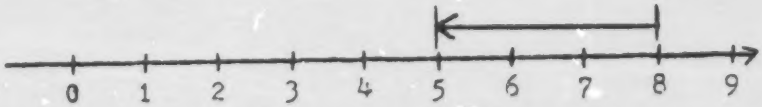

_____

(6)

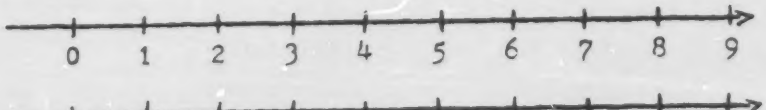



The subtraction equation is given, you draw the graph.

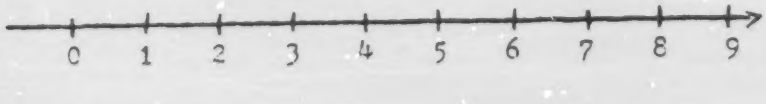
(7) 8 - 3 = 5



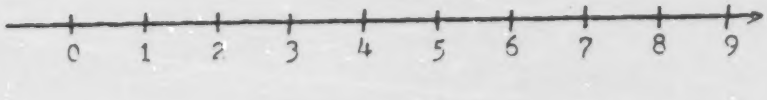

(8) 7 - 3 = 4



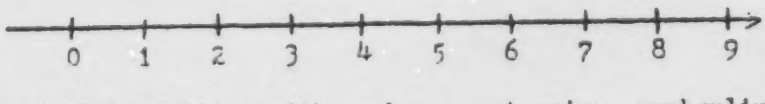

(9) 6 - 1 = 5




(10) 5 - 5 = 0




(11) 9 - 6 = 3




Most subtraction problems will be written with numbers, not using numberlines for illustrations. Lets try a few with just numbers: 12) 4 - 2 = _____

(13) 5 - 3 = _____ (15) 6 - 4 = _____ (17) 1 - 1 = _____

(14) 4 - 1 = _____ (16) 3 - 2 = _____ (18) 6 - 3 = _____

Name _____

(19) 7 - 2 = _____ (22) 8 - 1 = _____ (25) 5 - 5 = _____

(20) 7 - 4 = _____ (23) 9 - 2 = _____ (26) 9 - 5 = _____

(21) 8 - 4 = _____ (24) 8 - 7 = _____ (27) 8 - 6 = _____

Subtraction is sometimes called the opposite or inverse of addition. Every subtraction problem can be rewritten as an addition problem. Here's an example:

8 - 5 = 3; writing this as an addition problem, we ould have 8 = 5 + 3 or 3 + 5 = 8.

Solve then rewrite each of these subtraction problems as addition problems.

| Subtraction Problem | Related Addition Problem | Subtraction Problem | Related Addition Problem |
|---|---|---|---|
| (28) 8 - 5 = 3 | 8 = 5 + 3 | (33) 7 - 4 = 3 | _____ |
| (29) 9 - 2 = ___ | 9 = 2 + ___ | (34) 8 - 5 = ___ | _____ |
| (30) 7 - 6 = ___ | _____ | (35) 4 - 2 = ___ | _____ |
| (31) 5 - 1 = ___ | _____ | (36) 9 - 4 = ___ | _____ |
| (32) 3 - 0 = ___ | _____ | (37) 7 - 4 = ___ | _____ |

Let's try to write equations for the following problems.

(38) Take 4 quarters from your bank
Spend 3 going to the show.
You have _____ left. Equation: 4 - 3 = 1

(39) Example:
Your mom gives you 7 quarters for a bus ticket. The school clerk takes 5.
You have _____ left. _____

(40) Squirt gun time is here. From 9 cents the clerk takes 7 for a gun. You have _____ left. _____

(41) Here are 7 quarters for school lunch. The cafeteria lady takes 3.
You have _____ left. _____

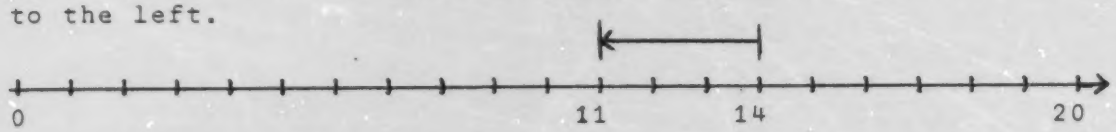
(42) What if!!
You have 7 quarters to go to the movie. The movie costs only 4 quarters, but the lady takes your money and gives back only 2 quarters. But you know that 7 - 4 = _____. So you might say, "Pardon me, but I think you made a mistake, I should have _____ quarters back."

(43) You take 10 dollars to get some records. The record cost 3 dollars and the clerk gives you only 6 dollars change. But, you know that 10 - 3 = _____. You tell him pleasantly that you know 3 subtracted from 10 is not 6, and you should get _____ dollars back.

Name_____ Period_____ Date_____

Objective: You will be able to subtract 2-digit numbers which do not involve borrowing.

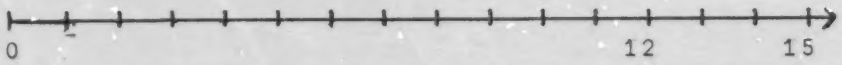
1) To show 14 - 3 on the number line we begin at 14 and move 3 units to the left.




14 - 3 = 11 or 14 = 11 + 3

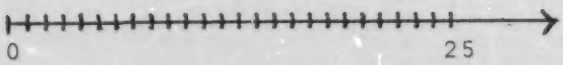
Use the number line provided to illustrate each subtraction problem.

2) 12 - 6 = _____
12 = 6 + _____




3) 11 - 7 = _____
11 = 7 + _____

4) 25 - 13 = _____
25 = 13 + _____




It is often convenient to write subtraction problems in the following form.

$$\begin{array}{rcl} 19 & = & 10 + 9 \\ -\ 8 & = & -(\quad 8) \\ \hline & & 10 + 1 \\ & = & 11 \end{array} \qquad \begin{array}{rcl} 28 & = & 20 + 8 \\ -\ 13 & = & -(10 + 3) \\ \hline & = & 10 + 5 \\ & & 15 \end{array}$$

Complete the following exercises in the same way.

5) $\begin{array}{rcl} 29 & = & 20 + 9 \\ -\ 13 & = & -(10 + \_\_) \\ \hline & & 10 + \_\_\_\_ \\ & = & \_\_\_\_\_ \end{array}$

6) $\begin{array}{rcl} 86 & = & 80 + 6 \\ -\ 24 & = & -(20 + \_\_\_\_) \\ \hline & & 60 + \_\_\_\_ \\ & = & \_\_\_\_\_ \end{array}$

7) $55 = 50 + \_\_\_\_\_$
$-25 = -(20 + \_\_\_\_\_)$
$\_\_\_\_ \quad \_\_\_\_\_$
$\_\_\_ + \_\_\_\_\_$
$= \_\_\_\_\_$

8) $37 = \_\_\_\_\_ + \_\_\_\_\_$
$-24 = \_\_\_\_\_ + \_\_\_\_\_$
$\_\_\_\_ \quad \_\_\_\_\_$
$\_\_\_\_\_ + \_\_\_\_\_$
$= \_\_\_\_\_$

Do the following subtraction problems without rewriting.

9) $\begin{array}{r} 45 \\ -\ 24 \\ \hline \end{array}$

10) $\begin{array}{r} 68 \\ -\ 35 \\ \hline \end{array}$

11) $\begin{array}{r} 27 \\ -\ 13 \\ \hline \end{array}$

12) $\begin{array}{r} 99 \\ -\ 66 \\ \hline \end{array}$

13) $\begin{array}{r} 73 \\ -\ 21 \\ \hline \end{array}$

14) $\begin{array}{r} 90 \\ -\ 50 \\ \hline \end{array}$

15) $\begin{array}{r} 69 \\ -\ 43 \\ \hline \end{array}$

16) $\begin{array}{r} 19 \\ -\ 12 \\ \hline \end{array}$

17) $\begin{array}{r} 58 \\ -\ 38 \\ \hline \end{array}$

18) $99 - 15 = \_\_\_\_\_$

19) $99 - 68 = \_\_\_\_\_$

20) $68 - 45 = \_\_\_\_\_$

21) $27 - 7 = \_\_\_\_\_$

22) $45 - 34 = \_\_\_\_\_$

SUBTRACTION OF WHOLE NUMBERS C-3

Name _____ Period _____ Date _____

Objective: You will be able to find the difference between two 2-digit numbers which involve borrowing or regrouping.

You're making good progress. Suppose someone asks you to do this problem.

$$\begin{array}{r} 22 \\ -\ 17 \\ \hline \end{array}$$

Since 7 is greater than 2 we can't subtract, so we'll have to do something different. Look at the examples below to find the pattern for solving these kinds of subtraction problems.

| | Expand | Regroup |
|---|---|---|
| 22 → | 20 + 2 → | 10 + 12 |
| - 17 → | - (10 + 7) → | - (10 + 7) |
| 43 | 40 + 3 | 30 + 13 |
| - 29 | - (20 + 9) | - (20 + 9) |

Fill in the work for these problems like you did on the previous problems (regroup).

| | | Expand | Regroup |
|---|---|---|---|
| 1) | 31 → | ____ + 1 → | ____ + ____ |
| | - 26 → | - (20 + ____) → | - (____ + 6) |
| | | | ____ + ____ = ____ |
| 2) | 54 → | ____ + ____ → | ____ + ____ |
| | - 35 → | ____ + ____ → | ____ + ____ |
| | | | ____ + ____ = ____ |
| 3) | 76 → | ____ + ____ → | ____ + ____ |
| | - 60 → | ____ + ____ → | ____ + ____ |
| | | | ____ + ____ = ____ |
| 4) | 83 → | → | |
| | - 17 → | → | |
| | | | ____ + ____ = ____ |

C - 3

5) $\begin{array}{r} 32 \\ -\ 14 \\ \hline \end{array} = \begin{array}{r} {}^{2}\not{3}\,{}^{12}\not{2} \\ 1\ 4 \\ \hline 1\ 8 \end{array}$

6) $\begin{array}{r} 43 \\ -\ 28 \\ \hline \end{array} = \begin{array}{r} {}^{3}\not{4}\,{}^{13}\not{3} \\ 2\ 8 \\ \hline 1\ 5 \end{array}$

7) $\begin{array}{r} 52 \\ -\ 17 \\ \hline \end{array} = \begin{array}{r} {}^{4}\not{5}\,{}^{12}\not{2} \\ 1\ 7 \\ \hline \end{array}$

8) $\begin{array}{r} 72 \\ -\ 68 \\ \hline \end{array} = \begin{array}{r} {}^{6}\not{7}\,{}^{12}\not{2} \\ 6\ 8 \\ \hline \end{array}$

9) $\begin{array}{r} 31 \\ -\ 9 \\ \hline \end{array} = \begin{array}{r} {}^{2}\not{3}\,{}^{11}\not{1} \\ 9 \\ \hline \end{array}$

Now do these on your own.

10) $\begin{array}{r} 83 \\ -\ 54 \\ \hline \end{array}$

11) $\begin{array}{r} 61 \\ -\ 38 \\ \hline \end{array}$

12) $\begin{array}{r} 83 \\ -\ 55 \\ \hline \end{array}$

13) $\begin{array}{r} 66 \\ -\ 48 \\ \hline \end{array}$

14) $\begin{array}{r} 37 \\ -\ 19 \\ \hline \end{array}$

15) $\begin{array}{r} 48 \\ -\ 29 \\ \hline \end{array}$

16) $\begin{array}{r} 68 \\ -\ 47 \\ \hline \end{array}$

17) $\begin{array}{r} 53 \\ -\ 34 \\ \hline \end{array}$

18) $\begin{array}{r} 98 \\ -\ 78 \\ \hline \end{array}$

19) $\begin{array}{r} 49 \\ -\ 26 \\ \hline \end{array}$

Name _____ Period _____ Date _____

Objective: You will be able to find the difference between two 3-digit numbers in which borrowing is not involved.

You are doing very well with subtraction. Soon you will be able to do any subtraction problem that may come up in your life. Here are some three-digit subtraction problems and how to solve them.

$$\begin{aligned} 683 &= 600 + 80 + 3 \\ -\,341 &= -(300 + 40 + 1) \\ &= 300 + 40 + 2 \end{aligned}$$

Complete the following in the same manner.

$$\begin{aligned} 947 &= 900 + \_\_ + 7 \\ -\,625 &= -(\_\_ + 20 + 5) \\ &= \_\_ + \_\_ + \_\_ \end{aligned}$$

Do the following subtraction problems without expanding.

(1) $\begin{array}{r} 564 \\ -\,323 \\ \hline \end{array}$ (2) $\begin{array}{r} 592 \\ -\,271 \\ \hline \end{array}$ (3) $\begin{array}{r} 597 \\ -\,496 \\ \hline \end{array}$ (4) $\begin{array}{r} 599 \\ -\,498 \\ \hline \end{array}$

(5) $\begin{array}{r} 728 \\ -\,416 \\ \hline \end{array}$ (6) $\begin{array}{r} 989 \\ -\,723 \\ \hline \end{array}$ (7) $\begin{array}{r} 432 \\ -\,221 \\ \hline \end{array}$ (8) $\begin{array}{r} 596 \\ -\,384 \\ \hline \end{array}$

(9) $\begin{array}{r} 928 \\ -\,518 \\ \hline \end{array}$ (10) $\begin{array}{r} 426 \\ -\,214 \\ \hline \end{array}$ (11) $\begin{array}{r} 746 \\ -\,524 \\ \hline \end{array}$ (12) $\begin{array}{r} 887 \\ -\,567 \\ \hline \end{array}$

Let's play a game called "Following directions". Some of the blanks have been completed for you. Figure out the "system" and complete the chart.

| | 16 | 21 | 35 | 47 | 85 | 19 |
|---|---|---|---|---|---|---|
| $+15$ | | | | 62 | | |
| $-4$ | | | | | | 15 |
| $+3$ | | 24 | | | | |
| $+29$ | | | | | | |
| $-16$ | 0 | | | | | |

Name _____

Complete these mathematical sentences. Watch the signs.

(13) 45 - 13 = _____ (14) 45 - _____ = 24

(15) _____ - 24 = 36 (16) 93 + _____ = 142

(17) _____ + 4 = 91 (18) 93 + 475 = _____

(19) 46 + 75 + 29 = _____ (20) 42 + 36 + _____ = 212

(21) 92 - 47 = _____ (22) 472 - _____ = 369

Shorties:

(23) 39 cats, 18 left home, how many at home?
Sentence: 39 - 18 = _____ Answer: _____

(24) 43 birds on a fence, 29 more arrived, how many birds on the fence?
Sentence: _____ + _____ = _____ Answer: _____

(25) 92 on first test, 89 on second test, 73 on third test, total points on all three tests?
Sentence: ____ + ____ + ____ = _____ Answer: _____

(26) Today is the 23rd, 6 days ago was the _____?
Sentence: _____ Answer: _____

(27) Today is the 19th, tomorrow is the _____.
Sentence: _____ Answer: _____

(28) Today is the 14th, one week from now the date will be _____.
Sentence: _____ Answer: _____

(29) 26 letters in the alphabet, remove the 5 vowels, how many consonants?
Sentence: _____ Answer: _____

(30) 365 days in one year. 52 Sundays, how many days left? _____
Sentence: _____ Answer: _____

(31) 32 problems, 31 done, how many left? _____.
Sentence: _____ Answer: _____

(32) 180 school days, 120 gone, how many left? _____
Sentence: _____ Answer: _____

Name _____ Period _____ Date _____

Level C Checkpoint 1-4

Subtraction of Whole Numbers

1. $\begin{array}{r} 9 \\ -\ 6 \\ \hline \end{array}$

2. $\begin{array}{r} 5 \\ -\ 5 \\ \hline \end{array}$

(C-1)

3. $\begin{array}{r} 78 \\ -\ 38 \\ \hline \end{array}$

4. $\begin{array}{r} 45 \\ -\ 20 \\ \hline \end{array}$

5. 29 - 3 = _____

(C-2)

6. $\begin{array}{r} 82 \\ -\ 54 \\ \hline \end{array}$

7. $\begin{array}{r} 43 \\ -\ 19 \\ \hline \end{array}$

8. $\begin{array}{r} 72 \\ -\ 63 \\ \hline \end{array}$

(C-3)

9. $\begin{array}{r} 989 \\ -\ 723 \\ \hline \end{array}$

10. 32 birds on a fence, 17 fly away, how many are left? ____

(C-4)

Name _____ Period _____ Date _____

Level C A-checkpoint 1-4

Subtraction of Whole Numbers

1. $\begin{array}{r} 8 \\ -\ 5 \\ \hline \end{array}$

2. $\begin{array}{r} 9 \\ -\ 0 \\ \hline \end{array}$

(C-1)

3. $\begin{array}{r} 47 \\ -\ 30 \\ \hline \end{array}$

4. $\begin{array}{r} 37 \\ -\ 17 \\ \hline \end{array}$

5. 87 - 5 = _____

(C-2)

6. $\begin{array}{r} 53 \\ -\ 17 \\ \hline \end{array}$

7. $\begin{array}{r} 46 \\ -\ 38 \\ \hline \end{array}$

8. $\begin{array}{r} 78 \\ -\ 49 \\ \hline \end{array}$

(C-3)

9. $\begin{array}{r} 564 \\ -\ 323 \\ \hline \end{array}$

10. 41 dollars have you, but a bill for 23 dollars is due, after the bill is paid. How many dollars remain? _____

(C-4)

Name _____ Period _____ Date _____

Objective: You will be able to find the difference between two 3 digit numbers which involve borrowing.

You were able to subtract two digit numbers by borrowing. Now let's try subtraction of three digit numbers where you have to borrow.

| | Expand | Borrow |
|---|---|---|
| 456<br>- 248 | 400 + 50 + 6<br>-(200 + 40 + 8) | 400 + 40 + 16<br>-(200 + 40 + 8)<br>200 + 0 + 8 = 208 |
| 328<br>- 176 | 300 + 20 + 8<br>-(100 + 70 + 6) | 200 + 120 + 8<br>-(100 + 70 + 6)<br>100 + 50 + 2 = 152 |

You may want to use a shortcut.

(1) 456 = 4 5 6 (4 16)
- 248 = -2 4 8
0 8

(2) 328 = 3 2 8 (2 12)
- 176 = - 1 7 6
1

(3) 4 7 8
- 2 4 9

(4) 3 2 3
- 1 1 4

(5) 5 6 6
- 3 5 7

(6) 6 8 7
- 4 3 9

(7) 5 6 3
- 4 3 4

(8) 9 8 3
- 7 5 5

(9) 8 9 1
- 4 7 5

(10) 6 8 3
- 4 3 7

(11) 7 4 4
- 5 2 9

Sometimes you must borrow from two places away to solve your problem.

| | Borrowing |
|---|---|
| (12) 423 = 400 + 20 + 3 = 300 + 110 + 13<br>- 247 = - 200 + 40 + 7 = - 200 + 40 + 7<br>100 + 70 + 6 = 176 | |

(13) 6 2 3
- 4 4 4

(14) 9 8 3
- 6 9 5

(15) 8 3 2
- 5 9 7

(16) 6 4 8
- 2 5 9

(17) $\begin{array}{r} 313 \\ -147 \\ \hline \end{array}$

(18) $\begin{array}{r} 214 \\ -146 \\ \hline \end{array}$

(19) John has been saving money to buy a car. He has $154 now. The car he wants to buy costs $325. How much more money does John need? _____

(20) Ann's library book has 316 pages. She has read 147 pages. How many more pages must she read to finish the book? _____

(21) Mr. Miller drove 372 miles on Monday and 415 miles on Tuesday. How many miles more did he drive on Tuesday than on Monday?

_____

(22) Mrs. Smith has $210 in the bank. She wrote checks totaling $96 to pay bills. How much money is left in her account?

_____

(23) $\begin{array}{r} 456 \\ -392 \\ \hline \end{array}$

(24) $\begin{array}{r} 795 \\ -647 \\ \hline \end{array}$

(25) $\begin{array}{r} 321 \\ -275 \\ \hline \end{array}$

(26) $\begin{array}{r} 923 \\ -879 \\ \hline \end{array}$

(27) $\begin{array}{r} 476 \\ -259 \\ \hline \end{array}$

(28) $\begin{array}{r} 463 \\ -379 \\ \hline \end{array}$

(29) $\begin{array}{r} 213 \\ -209 \\ \hline \end{array}$

(30) $\begin{array}{r} 627 \\ -555 \\ \hline \end{array}$

(31) $\begin{array}{r} 444 \\ -397 \\ \hline \end{array}$

# SUBTRACTION OF WHOLE NUMBERS C - 6

Name _____ Period _____ Date _____

**Objective:** You will be able to find the difference between 2 numerals which contain zeros.

You're doing great with subtraction. Let's climb a little higher now. Sometimes there are problems that ask you to subtract from. Suppose someone asks you to do this problem:

$$\begin{array}{r} 460 \\ -\ 238 \\ \hline \end{array}$$

Can we subtract eight from zero? No

I hope your answer was no. We can however, solve the problem by borrowing. Let's look at the problem again.

$$\begin{array}{r} {\scriptstyle 5\ 10} \\ 4\ \not{6}\ 0 \\ -\ 2\ 3\ 8 \\ \hline \end{array}$$

Notice, that we borrowed ten from the sixty and added it to the zero.

Here it is:

$$\begin{array}{r} {\scriptstyle 5\ 10} \\ 4\ \not{6}\ 0 \\ -\ 2\ 3\ 8 \\ \hline 2\ 2\ 2 \end{array}$$

Now try some on your own:

1. $\begin{array}{r} {\scriptstyle 5} \\ 3\ \not{6}\ 0 \\ -\ 2\ 3\ 5 \\ \hline \end{array}$
2. $\begin{array}{r} 4\ 8\ 0 \\ -\ 3\ 2\ 4 \\ \hline \end{array}$
3. $\begin{array}{r} 3\ 4\ 0 \\ -\ 2\ 6\ 7 \\ \hline \end{array}$
4. $\begin{array}{r} 1\ 6\ 0 \\ -\ 1\ 4\ 2 \\ \hline \end{array}$
5. $\begin{array}{r} 4\ 1\ 0 \\ -\ 3\ 0\ 4 \\ \hline \end{array}$

Sometimes you may want to check your subtraction. Here's a method: add the difference to the subtrahend. If your sum is the minuend, you have subtracted correctly.

6. $\begin{array}{r} {\scriptstyle 7} \\ 4\ \not{8}\ 0 \\ -\ 2\ 6\ 4 \\ \hline 2\ 1\ 6 \end{array}$ minuend, subtrahend, difference

check: $\begin{array}{r} 2\ 6\ 4 \\ +\ 2\ 1\ 6 \\ \hline 4\ 8\ 0 \end{array}$ subtrahend, difference, minuend

7. $\begin{array}{r} 9\ 9\ 0 \\ -\ 3\ 8\ 4 \\ \hline \end{array}$ check: $\begin{array}{r} \\ +\ \\ \hline \end{array}$

8. $\begin{array}{r} 4\ 4\ 4 \\ -\ 2\ 3\ 3 \\ \hline \end{array}$ check: $\begin{array}{r} \\ +\ \\ \hline \end{array}$

9. $\begin{array}{r} 3\ 9\ 0 \\ -\ 1\ 4\ 2 \\ \hline \end{array}$ check: $\begin{array}{r} \\ +\ \\ \hline \end{array}$

10. $\begin{array}{r} 1\ 9\ 0 \\ -\ \ 8\ 9 \\ \hline \end{array}$ check: $\begin{array}{r} \\ +\ \\ \hline \end{array}$

11. $\begin{array}{r} 9\ 6\ 0 \\ -\ 4\ 6\ 3 \\ \hline \end{array}$ check: $\begin{array}{r} \\ +\ \\ \hline \end{array}$

12. $\begin{array}{r} 8\ 4\ 0 \\ -\ 2\ 3\ 8 \\ \hline \end{array}$ check: $\begin{array}{r} \\ +\ \\ \hline \end{array}$

13. $\begin{array}{r} 8\ 1\ 0 \\ -\ 7\ 7\ 9 \\ \hline \end{array}$ check: $\begin{array}{r} \\ +\ \\ \hline \end{array}$

14. $\begin{array}{r} 2\ 1\ 0 \\ -\ 1\ 0\ 6 \\ \hline \end{array}$ check: $\begin{array}{r} \\ +\ \\ \hline \end{array}$

Now let's tackly problems in which we have to subtract from <u>two</u> zeros.

Example: 500 − 275

We can't borrow from the ten's column, so let's borrow from the hundred's column.

<u>1st step:</u>

$$\begin{array}{r} 4\ 10 \\ \not{5}\ \not{0}\ 0 \\ -\ 2\ 7\ 5 \end{array}$$

<u>2nd step:</u> Borrow one from the ten's column, add ten to the one's column

$$\begin{array}{r} {\scriptstyle 9} \\ 4\ \not{1}\not{0}\ 10 \\ \not{5}\ \not{0}\ 0 \\ -\ 2\ 7\ 5 \\ \hline 2\ 2\ 5 \end{array}$$

Try a few yourself:

1) 600 − 172

2) 800 − 791

3) 300 − 14

4) 1200 − 965

5) 100 − 17

6) 1500 − 1144

7) 1010 − 709

8) 2009 − 1524

9) 1040 − 786

10) A truck loaded with lumber weighed 8,008 lbs. The truck weighed 4, 372 lbs. when it was unloaded.

How much did the lumber weigh? _____

11) There were 1,005 pupils in a high school. Of these, 529 were girls.

How many boys were in the school? _____

12. One gasoline storage tank held 1,500 gallons and a second tank held 1,175 gallons.

How many more gallons does the first tank hold than the second tank? _____

# SUBTRACTION OF WHOLE NUMBERS C-7

Name _____ Period _____ Date _____

**Objective:** You will be able to find the difference between any two numbers.

Sometimes you may want to check your subtraction. Here's a method: add the difference to the subtrahend. If your sum is the minuend you have subtracted correctly.

Example:

A) 3 0 0 0 0 minuend
- 2 1 9 8 7 subtrahend
8 0 1 3 difference

Check: 2 1 9 8 7 subtrahend
+ 8 0 1 3 difference
3 0 0 0 0 minuend

Here are some problems with many zeros. See if you can get them correct. Show your check.

1) 3 0 0 0 Check:
- 2 0 0

2) 4 0 0 0 Check:
- 2 9 7

3) 5 0 0 0 Check:
- 4 9 9 9

4) 1 0 0 0 Check:
- 8 3 7

5) 2 5 0 0 Check:
- 2 4 8 7

6) 2 0 0 1 0 Check:
- 1 9 8 6 5

7) 4 0 2 0 Check:
- 3 6 3 6

8) 8 0 0 0 Check:
- 7 2 4 6

9) 5 6 0 7 0 Check:
- 3 8 5 0 8

10) 6 7 0 0 8 Check:
- 4 8 0 0 9

Name_____ Period _____ Date _____

Level C Checkpoint 5 - 7

Subtraction of Whole Numbers

1. $\begin{array}{r} 645 \\ -\ 327 \\ \hline \end{array}$

2. $\begin{array}{r} 744 \\ -\ 528 \\ \hline \end{array}$

3. $\begin{array}{r} 938 \\ -\ 659 \\ \hline \end{array}$

(C-5)

4. $\begin{array}{r} 250 \\ -\ 224 \\ \hline \end{array}$

5. $\begin{array}{r} 980 \\ -\ 387 \\ \hline \end{array}$

6. MATCHING use correct letter

48 ← ____ a. product
b. minuend
−25 ← ____ c. difference
d. subtrahend
23 ← ____

7. There are 2,005 students enrolled in school, if 356 are absent, how many students are present?_____

8. There are 900 pencils, if 435 have no eraser, how many pencils have erasers? _____

(C-6)

9. $\begin{array}{r} 1000 \\ -\ 576 \\ \hline \end{array}$

10. $\begin{array}{r} 564009 \\ -\ 483972 \\ \hline \end{array}$

11. $\begin{array}{r} 30070 \\ -\ 21968 \\ \hline \end{array}$



(C-7)

Name _____ Period _____ Date _____

LEVEL C A-CHECKPOINT 5-7

SUBTRACTION OF WHOLE NUMBERS

1. $\begin{array}{r} 323 \\ -\ 114 \\ \hline \end{array}$

2. $\begin{array}{r} 744 \\ -\ 529 \\ \hline \end{array}$

3. $\begin{array}{r} 983 \\ -\ 695 \\ \hline \end{array}$

(C-5)

4. $\begin{array}{r} 160 \\ -\ 142 \\ \hline \end{array}$

5. $\begin{array}{r} 980 \\ -\ 182 \\ \hline \end{array}$

6. MATCHING use the correct letter

37 ← ____
−21 ← ____
16 ← ____

a. subtrahend
b. difference
c. addend
d. minuend

(C-6)

7. A truck loaded with lumber weighs **7,008** pounds, if the truck weighs 4.732 pounds when unloaded, how much does the lumber weigh? _____

8. There are 1,000 students in school, 429 are boys. How many girls are there? _____

(C-6)

9. $\begin{array}{r} 1000 \\ -\ 837 \\ \hline \end{array}$

10. $\begin{array}{r} 456009 \\ -\ 37981 \\ \hline \end{array}$

11. $\begin{array}{r} 200100 \\ -\ 189251 \\ \hline \end{array}$

(C-7)

POST TEST LEVEL C

Subtraction of Whole Numbers

Name _____

Period _____

Date _____

1. $\begin{array}{r} 7 \\ -\ 4 \\ \hline \end{array}$

2. $\begin{array}{r} 3 \\ -\ 3 \\ \hline \end{array}$

3. $\begin{array}{r} 6 \\ -\ 0 \\ \hline \end{array}$

(C-1)

4. $\begin{array}{r} 8\ 2 \\ -\ 2\ 2 \\ \hline \end{array}$

5. $\begin{array}{r} 3\ 9 \\ -\ 1\ 0 \\ \hline \end{array}$

6. 4 6 - 5 = _____

(C-2)

7. $\begin{array}{r} 5\ 3 \\ -\ 1\ 9 \\ \hline \end{array}$

8. 5 1 - 2 3 = _____

9. $\begin{array}{r} 9\ 7 \\ -\ 3\ 8 \\ \hline \end{array}$

(C-3)

10. 8 9 2 - 4 6 1 = _____

11. $\begin{array}{r} 8\ 5\ 6 \\ -\ 3\ 2\ 4 \\ \hline \end{array}$

12. $\begin{array}{r} 8\ 3\ 7 \\ -\ 6\ 3\ 7 \\ \hline \end{array}$

(C-4)

13. $\begin{array}{r} 4\ 5\ 2 \\ -\ 3\ 6\ 7 \\ \hline \end{array}$

14. $\begin{array}{r} 8\ 4\ 6 \\ -\ 2\ 5\ 7 \\ \hline \end{array}$

15. $\begin{array}{r} 9\ 8\ 3 \\ -\ 6\ 9\ 7 \\ \hline \end{array}$

(C-5)

Post Test Level C (Cont.)

16. $\begin{array}{r} 260 \\ -\ 242 \\ \hline \end{array}$

17. $\begin{array}{r} 980 \\ -\ 381 \\ \hline \end{array}$

18. $\begin{array}{r} 704 \\ -\ 686 \\ \hline \end{array}$

19. There were 3000 sheets of typing paper. If 587 are used today, how many are left? _____

20. A car weighs 2000 pounds unloaded. Five people get in the car and it is weighed again. It now weighs 2547 pounds. How much do the five people weigh together? _____

21. MATCHING use the correct letter

54 ← _____
-37 ← _____
17 ← _____

a) difference b) addend
c) minuend d) subtrahend

(C-6)

22. $\begin{array}{r} 4000 \\ -\ 2891 \\ \hline \end{array}$

23. $\begin{array}{r} 80090 \\ -\ 4000 \\ \hline \end{array}$

24. $\begin{array}{r} 50802 \\ -\ 28763 \\ \hline \end{array}$

25. $\begin{array}{r} 40650 \\ -\ 39768 \\ \hline \end{array}$

26. 487205 - 39574 = _____

(C-7)

LEVEL REVIEW C

Name_____ Period_____ Date_____

Subtraction of Whole Numbers

1.
$$\begin{array}{r} 47 \\ -\ 30 \\ \hline \end{array}$$

2. 87 - 5 = _____

(C-2)

3.
$$\begin{array}{r} 53 \\ -\ 17 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 78 \\ -\ 49 \\ \hline \end{array}$$

(C-3)

5. 41 dollars have you, but a bill for 23 dollars is due. After the bill is paid, how many dollars remain?_____

(C-4)

6.
$$\begin{array}{r} 744 \\ -\ 529 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 980 \\ -\ 182 \\ \hline \end{array}$$

(C-5)

8.
$$\begin{array}{rl} 14 & \leftarrow \_\_\_\_\_ \\ -\ 5 & \leftarrow \_\_\_\_\_ \\ \hline 9 & \leftarrow \_\_\_\_\_ \end{array}$$

(Subtrahend, difference, minuend)

9. A truck loaded with lumber weighs 7008 pounds. If the truck weighs 4732 pounds when unloaded, how much does the lumber weigh? _____

(C-6)

10.
$$\begin{array}{r} 1000 \\ -\ 837 \\ \hline \end{array}$$

11.
$$\begin{array}{r} 200100 \\ -\ 189251 \\ \hline \end{array}$$

(C-7)

PRETEST LEVEL D

Multiplication of Whole Numbers

Name _____

Period _____

Date _____

1. In 5 x 4 = 2 0 What is the product? _____

2. In 7 x 5 = 3 5 What are the factors? _____

(D-1)

3. a) 7 x 7 = _____ 4. a) 3 x 9 = _____

b) 9 x 9 = _____ b) 9 x 7 = _____

5. a) 8 x 8 = _____ 6. a) 7 x 0 = _____

b) 6 x 9 = _____ b) 5 x 9 = _____

(D-2,3)

7. 2 0 4
x 2

8. 3 0 1
x 3

9. 4 0 0 1
x 1

(D-4)

10. 6 9
x 7

11. 8 5
x 6

12. 3 9
x 9

(D-5)

13. 4 8 6
x 6

14. 7 3 9
x 8

15. 5 7 6
x 5

(D-6)

Pretest Level D (Cont.)

16. 86 x 92

17. 596 x 87

18. 334 x 64

(D-7)

19. 32 x 1000 = _____

20. 417 x 10000 = _____

21. 100 x 2010 = _____

(D-8)

22. 845 x 300

23. 1972 x 40

24. 8065 x 800

( D-9)

25. 347 x 198

26. 405 x 102

27. 691 x 337

28. 601 x 917

29. 2001 x 105

30. 872 x 340



(D-10,11)

# MULTIPLICATION OF WHOLE NUMBERS D-1

Name _____ Period ____ Date _____

| Objectives: | You will be able to identify factors and products in multiplication; multiply with numbers through 6. |
|---|---|

Multiplication is a mathematics operation that renames two or more factors as a product.

Example:

| Factors | | Product |
|---|---|---|
| 1 x 4 | = | 8 |
| 5 x 3 | = | 15 |
| 4 x 9 | = | 36 |
| 5 x 5 | = | 25 |

(1) A bar of candy costs 2 cents, how much would 4 bars cost? The answer could be found by multiplying 4 x 2 cents = 8 cents.

In this problem, 8 is called the <u>product</u> of 4 and 2. 4 and 2 are called <u>factors</u> of 8.

Problems to do:

(2) In 2 x 3 = 6, what is the product? _____

(3) In 3 x 2 = 6, what are the factors of 6? _____

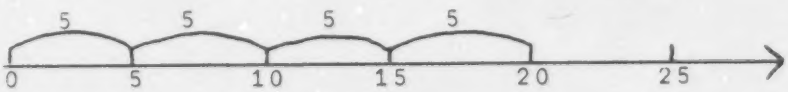
(4) In 2 x 3 = 6, _____ and _____ are <u>factors</u> of 6.

(5) In 3 x 5 = 15, _____ is called the <u>product</u>.

(6) In 5 x 5 = 25, 25 is called the _____.

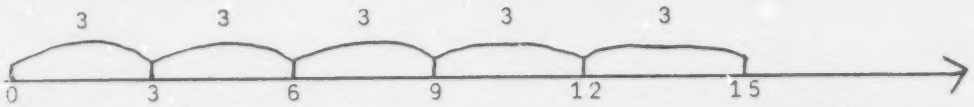
Multiplication can also be related to addition.

(7) Here is an example of counting by groups on a number line.




This could be written as 5 + 5 + 5 + 5 = 20 or 4 x 5 = 20

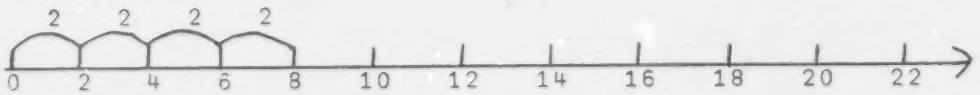
(8) One more example:




This is 3 + 3 + 3 + 3 + 3 = 15 or 5 x 3 = 15

Here are 5 number lines. Under each number line write the multiplication sentence which represents the problem that is illustrated.

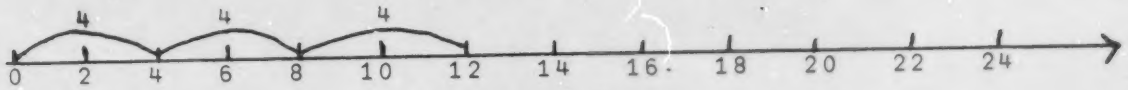
(9)




Sentence - <u>4</u> x <u>2</u> = _____

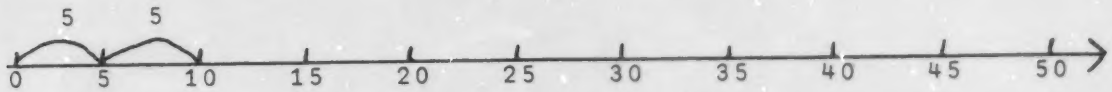
(D-1) cont.

(10)



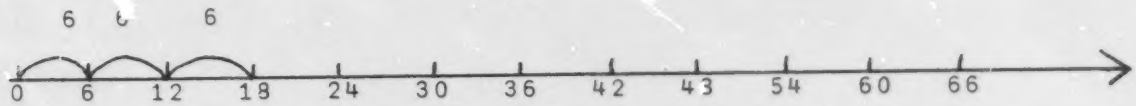

Sentence 3 x _____ = _____

(11)



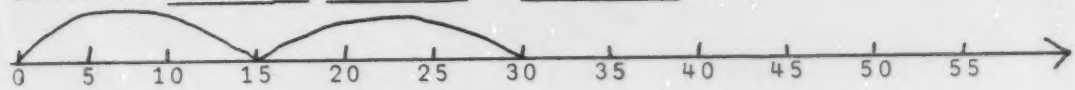

Sentence _____ x _____ = _____

(12)




Sentence _____ x _____ = _____

(13)




Sentence _____ x _____ = _____

TERMS

$$\begin{array}{r} 4 \\ +\ 2 \\ \hline 6 \end{array}$$ addends; sum

$$\begin{array}{r} 7 \\ -\ 3 \\ \hline 4 \end{array}$$ minuend; subtrahend; difference

$$\begin{array}{r} 8 \\ \times\ 5 \\ \hline 40 \end{array}$$ factors; product

Write the letter of the correct term for the circled numbers.

(14) _____ 7 x 8 = (56)

(15) _____ (9) - 2 = 7

(16) _____ 6 + 7 = (13)

(17) _____ 5 - (2) = 3

(18) _____ 9 x (3) = 27

(19) _____ 12 - 4 = (8)

(20) _____ (5) x 3 = 15

TERMS

A. Sum

B. Product

C. Subtrahend

D. Difference

E. Factor

F. Minuend

# MULTIPLICATION OF WHOLE NUMBERS D-2

Name_____ Period_____ Date_____

Objective: You will be able to write multiplication problems to represent addition problems: multiply with numbers 1 through 9.

Since 2 + 2 + 2 = 6, we can say 3 x 2 = 6

2 + 2 + 2 + 2 + 2 + 2 + 2 = 14 or 7 x 2 = 14

Write the multiplication example that is a shortcut for each of these addition problems. Check your answers.

1) 3 + 3 + 3 + 3 = 12 _____x_____ = 12

2) 4 + 4 + 4 + 4 + 4 = 20 _____x_____ = 20

3) 6 + 6 + 6 = 18 _____x_____ = 18

4) 7 + 7 + 7 + 7 = 28 _____x_____ = 28

5) 5 + 5 + 5 + 5 = 20 _____x_____ = 20

Write an addition problem for each of these multiplication problems.

6) 3 x 2 = 2 + 2 + 2

7) 4 x 3 = _____

8) 2 x 6 = _____

9) 7 x 5 = _____

10) 5 x 2 = _____

Let's see if you can write an addition example for these multiplication problems.

11) 2 x 4 = 8 _____

12) 3 x 3 = 9 _____

13) 7 x 6 = 42 _____

14) 9 x 5 = 45 _____

15) 6 x 9 = 54 _____

16) 3 x 8 = 24 _____

Since 2 x 6 = 12 and 3 x 4 = 12, we see that 2 x 6 = 3 x 4.

Supply the missing factors.

17) 3 x 4 = _____ x 6

18) 6 x 3 = _____ x 2

19) 5 x 4 = _____ x 10

20) 8 x 1 = 2 x _____

21) 6 x _____ = 3 x 4

22) _____ x 2 = 4 x 3

23) 2 x 8 = 4 x _____

24) 10 x 2 = 4 x _____

25) 6 x 4 = _____ x 8

26) 6 x 4 = _____ x 8

| X | 5 | 7 | 2 | 8 | 6 | 0 | 9 | 4 | 1 | 3 | # CORRECT |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | | | | | | | | | | | |
| 4 | | | | | | | | | | | |
| 9 | | | | | | | | | | | |
| 7 | | | | | | | | | | | |
| 5 | | | | | | | | | | | |
| 3 | | | | | | | | | | | |
| 6 | | | | | | | | | | | |
| 1 | | | | | | | | | | | |
| 8 | | | | | | | | | | | |
| 0 | | | | | | | | | | | |
| # CORRECT | | | | | | | | | | | |

D-2

COMPLETE THE CHART

# MULTIPLICATION OF WHOLE NUMBERS D-3

Name _____ Period _____ Date _____

Objective: You will be able to multiply any pair of one-digit numbers.

1) Let's make a multiplication table with the number 8, always getting out next answer by adding 8 to the number above.

4 x 8 = 32
5 x 8 = 40 add 1 group of 8
6 x 8 = _____ add 1 group of 8
7 x 8 = _____ add 1 group of 8
8 x 8 = _____ add 1 group of 8
9 x 8 = _____

2) Now try the nines on your own.

1 x 9 = 9
2 x 9 = 18 add 9
3 x 9 = _____ add 9
4 x 9 = _____ add 9
5 x 9 = _____ add 9
6 x 9 = _____
7 x 9 = _____
8 x 9 = _____
9 x 9 = _____

3) Make up a table for 7 starting with 7 x 1 and going to 7 x 9.

7 x 1 = _____
7 x 2 = _____
7 x 3 = _____
7 x 4 = _____
7 x 5 = _____
7 x 6 = _____
7 x 7 = _____
7 x 8 = _____
7 x 9 = _____

Now do the same with 6

1 x 6 = _____
2 x 6 = _____
3 x 6 = _____
4 x 6 = _____
5 x 6 = _____
6 x 6 = _____
7 x 6 = _____

(D-3) cont.

Find the products.

4) 9 x 2 = _____

5) 9 x 6 = _____

6) 4 x 0 = _____

7) 8 x 7 = _____

8) 6 x 9 = _____

9) 5 x 8 = _____

10) 7 x 7 = _____

11) 9 x 3 = _____

12) 6 x 6 = _____

13) 8 x 5 = _____

14) 7 x 3 = _____

15) 9 x 8 = _____

16) 8 x 8 = _____

17) 3 x 7 = _____

18) 5 x 6 = _____

19) 7 x 3 = _____

20) 2 x 9 = _____

21) 1 x 9 = _____

22) 7 x 5 = _____

23) 5 x 7 = _____

24) As you walk to school, you notice there are 3 light poles in each block. How many light poles are there in 6 blocks? _____

25) If milk in the cafeteria costs 5¢ each day, now much will milk cost for 5 days? _____

26) Which would cost more, five 6 cent stamps or seven 4 cent stamps?

_____

Name _____ Period _____ Date _____

Objectives: You will be able to multiply up to a five digit number by a one digit number without any carries, and multiply by zero.

Before you start working with larger numbers, do this speed drill. Try to finish in two minutes. Time yourself by the wall clock. Write your beginning time here _____ Ending time _____

| | | | | | |
|---|---|---|---|---|---|
| 1) 7 x 4 | 2) 8 x 8 | 3) 7 x 7 | 4) 6 x 5 | 5) 1 x 9 | 6) 3 x 9 |
| 7) 4 x 7 | 8) 6 x 7 | 9) 2 x 3 | 10) 4 x 4 | 11) 6 x 3 | 12) 7 x 8 |
| 13) 5 x 5 | 14) 7 x 6 | 15) 3 x 2 | 16) 9 x 9 | 17) 3 x 6 | 18) 3 x 5 |

Did you get done in two minutes? _____

Examples:

a) $12 \times 3$ = $(10 + 2) \times 3$

$30 + 6 = 36$

Short cut: $12 \times 3 = 36$

b) $213 \times 2$ = $(200 + 10 + 3) \times 2$

$400 + 20 + 6 = 426$

$213 \times 2 = 426$

c) $2132 \times 3$ = $(2000 + 300 + 10 + 2) \times 3$

$6000 + 900 + 30 + 6 = 6936$

$2312 \times 3 = 6936$

Multiply: You can use the short cut.

| | | | | |
|---|---|---|---|---|
| 19) 21 x 4 | 20) 122 x 3 | 21) 41 x 2 | 22) 11 x 9 | 23) 22 x 4 |
| 24) 223 x 1 | 25) 2012 x 4 | 26) 333 x 2 | 27) 1111 x 6 | 28) 343 x 2 |

Multiplication by zero is very easy. If we have zero groups of any number we have a total of zero. For example: 0 x 5 = 0. This gives us the multiplication property of zero. When 0 is used as a factor the product is always 0.

Examples:

| 0 | 7 | 10 | 400 | 202 |
|---|---|---|---|---|
| x 9 | x 0 | x 7 | x 2 | x 4 |

MULTIPLY:

29) 303 x 2

30) 400 x 2

31) 123 x 3

32) 501 x 3

33) 909 x 1

34) 220 x 4

35) 2020 x 4

36) 1111 x 9

37) 3013 x 2

38) 12345 x 1

39) In a meeting room, there were 10 rows of chairs with 9 chairs in each row. How many chairs were there? _____

40) Mary had 5 dimes. How many cents did she have? _____

41) Each of 9 boxes held 10 black marbles and 10 red marbles. How many marbles were there in all? _____.

42) Mr. Smith had 3 crates of records with 132 records in each crate. How many records did he have? _____.

LEVEL D CHECKPOINT 1-4

Multiplication of Whole Numbers

Name _____

Period _____

Date _____

1. In 3 x 4 = 1 2 What is the product? _____

2. In 3 x 4 = 1 2 What are the factors? _____

(D-1)

3. a) 7 x 7 = _____
   b) 6 x 8 = _____

4. a) 9 x 9 = _____
   b) 8 x 9 = _____

5. a) 6 x 9 = _____
   b) 8 x 7 = _____

6. a) 9 x 7 = _____
   b) 8 x 8 = _____

(D-2,3)

7.
$$\begin{array}{r} 2012 \\ \times \quad 4 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 303 \\ \times \quad 2 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 4001 \\ \times \quad 2 \\ \hline \end{array}$$

(D-4)

10. Mr. Smith had 3 crates of oranges with 132 oranges in each crate. How many oranges did Mr. Smith have all together?

_____

(D-4)

LEVEL D A-CHECKPOINT 1-4

Multiplication of Whole Numbers

Name _____

Period _____

Date _____

1. In 2 x 3 = 6 What are the factors? _____

2. In 2 x 3 = 6 What is the product? _____

(D-1)

3. a) 9 x 9 = _____
   b) 8 x 9 = _____

4. a) 7 x 6 = _____
   b) 9 x 7 = _____

5. a) 8 x 7 = _____
   b) 6 x 9 = _____

6. a) 5 x 8 = _____
   b) 7 x 7 = _____

(D-2,3)

7.
$$\begin{array}{r} 3013 \\ \times \quad 3 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 404 \\ \times \quad 2 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 2001 \\ \times \quad 6 \\ \hline \end{array}$$

(D-4)

10. Mrs. Jones has 4 boxes of old greeting cards. There are 221 cards in each box. How many old greeting cards does she have? _____

(D-4)

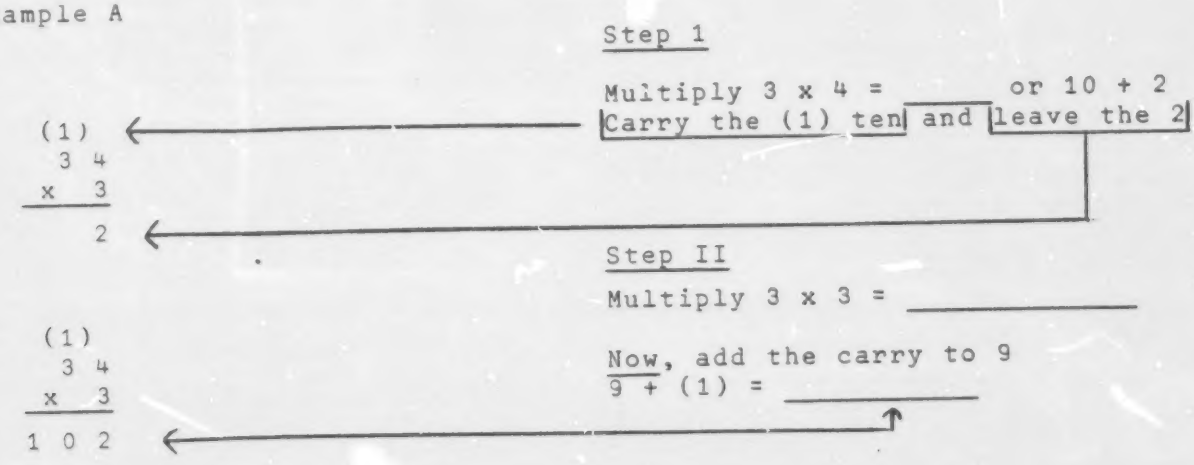
# MULTIPLICATION OF WHOLE NUMBERS D-5

Name _____ Period _____ Date _____

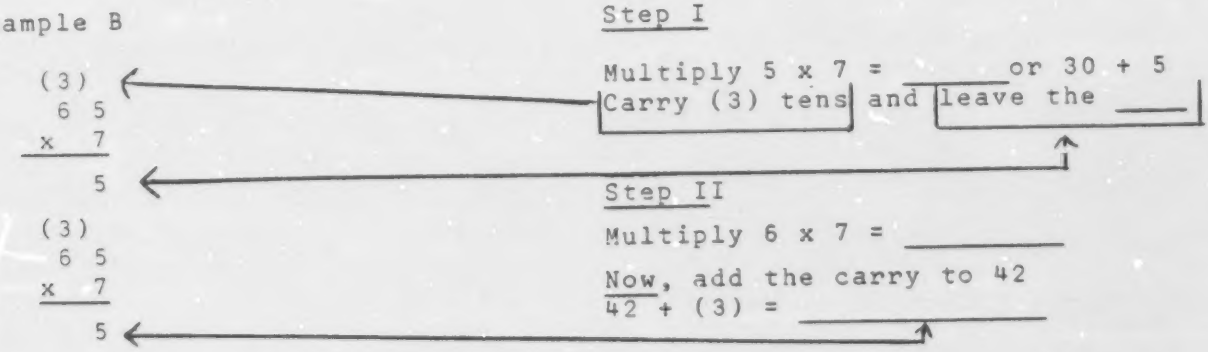
**Objectives:** You will be able to multiply a one-digit number times another whole number with carry.

In multiplication it is sometimes necessary to "carry" a multiple of 10 to the next higher place value column.

Example A




Example B




Multiply: Use carry if needed.

| | | | | | |
|---|---|---|---|---|---|
| 1) 35 x 2 | 2) 67 x 2 | 3) 65 x 8 | 4) 93 x 6 | 5) 27 x 2 | 6) 59 x 7 |
| 7) 29 x 3 | 8) 44 x 5 | 9) 99 x 7 | 10) 62 x 5 | 11) 68 x 9 | 12) 44 x 2 |
| 13) 21 x 9 | 14) 29 x 0 | 15) 83 x 4 | 16) 99 x 9 | 17) 32 x 4 | 18) 90 x 9 |

Multiply: Use carry when necessary.

19. $\begin{array}{r} 44 \\ \times\ 4 \\ \hline \end{array}$ 20. $\begin{array}{r} 46 \\ \times\ 7 \\ \hline \end{array}$ 21. $\begin{array}{r} 55 \\ \times\ 5 \\ \hline \end{array}$ 22. $\begin{array}{r} 86 \\ \times\ 4 \\ \hline \end{array}$ 23. $\begin{array}{r} 14 \\ \times\ 8 \\ \hline \end{array}$

Let's do something different:

If $5 \times n = 35$, you know that n must be 7 because $5 \times 7 = 35$

Find n in these examples:

24. $8 \times n = 64$
$n =$ _____

25. $6 \times n = 24$
$n =$ _____

26. $9 \times 0 = n$
$n =$ _____

27. $n \times 6 = 42$
$n =$ _____

28. $9 \times n = 72$
$n =$ _____

29. $7 \times n = 56$
$n =$ _____

What number would make these problems correct?

30. $\begin{array}{r} 2\ \_ \\ \times\ 6 \\ \hline 126 \end{array}$ 31. $\begin{array}{r} \_\_\ 1 \\ \times\ \ 3 \\ \hline 63 \end{array}$ 32. $\begin{array}{r} \_\_\ 1 \\ \times\ \ 6 \\ \hline 246 \end{array}$ 33. $\begin{array}{r} \_\_\ 1 \\ \times\ \ 7 \\ \hline 567 \end{array}$

34. $\begin{array}{r} 5\ \_ \\ \times\ 5 \\ \hline 250 \end{array}$ 35. $\begin{array}{r} \_\_\ 2 \\ \times\ \ 9 \\ \hline 108 \end{array}$ 36. $\begin{array}{r} 5\ \_ \\ \times\ 8 \\ \hline 416 \end{array}$ 37. $\begin{array}{r} 4\ \_ \\ \times\ 4 \\ \hline 196 \end{array}$

38. Factor x Factor = _____

39. $5 \times 8 =$ _____ 40. $9 \times 7 =$ _____

41. $6 \times 9 =$ _____ 42. $0 \times 8 =$ _____

43. $7 \times 6 =$ _____ 44. $9 \times 9 =$ _____

45. $8 \times 8 =$ _____ 46. $7 \times 7 =$ _____

47. $9 \times 4 =$ _____ 48. $9 \times 8 =$ _____

49. $6 \times 6 =$ _____ 50. $8 \times 7 =$ _____

# MULTIPLICATION OF WHOLE NUMBER D-6

Name_____ Period_____ Date_____

**Objective:** You will be able to multiply by a one-digit number with carrying

One way of doing a problem like (236 x 3) or (3 x 236) would be to write three times 236 and then add.

$$\begin{array}{r} {\scriptstyle (1)(1)} \\ 236 \\ 236 \\ +\ 236 \\ \hline 708 \end{array} = 708$$

Or, you could add 3 + 3 + 3 + 3 .....+ 3 until you have added 236 of them.

Or, use the short method again. Remember: 236 = (200 + 30 + 6)

**First step**

$$\begin{array}{r} 236 \\ \times\ \ 3 \\ \hline 8 \end{array}$$

3 x 6 = 18 = 1 ten + 8 ones

Write the "8" and carry the One group of 10.

**Second step**

$$\begin{array}{r} {\scriptstyle (1)} \\ 236 \\ \times\ \ 3 \\ \hline 08 \end{array}$$

3 x 30 = 90 = 9 tens + 1 ten (carry #) = 10 tens

Write the "0" and carry one group of 100 over the 2.

**Third step**

$$\begin{array}{r} {\scriptstyle (1)} \\ 236 \\ \times\ \ 3 \\ \hline 708 \end{array}$$

3 x 200 + 100 (carry) = 700

More examples:

A) $\begin{array}{r} {\scriptstyle (3)\ (3)} \\ 555 \\ \times\ \ 6 \\ \hline 3330 \end{array}$

B) $\begin{array}{r} {\scriptstyle (7)} \\ 909 \\ \times\ \ 8 \\ \hline 7272 \end{array}$

C) $\begin{array}{r} {\scriptstyle (2)\ (5)} \\ 435 \\ \times\ \ 8 \\ \hline 3496 \end{array}$

D) $\begin{array}{r} {\scriptstyle (2)\ (3)} \\ 947 \\ \times\ \ 5 \\ \hline 4735 \end{array}$

D - 6 (cont)

Multiply:

3) 306 x 6

4) 468 x 5

5) 567 x 8

6) 132 x 9

If you missed more than 1, ask for help.

7) 666 x 6

8) 827 x 6

9) 542 x 5

10) 607 x 6

11) 9009 x 9

12) 3037 x 7

13) 305 x 6

14) 6301 x 7

15) 1238 x 4

16) 3105 x 6

17) 450 x 7

Now try these: Put the answer in the space at the end of the problem.

18) Each boy's basketball team has 5 players. How many boys are needed for 6 teams? _____. If each team has 2 subs, how many subs are there? _____

19) Each high school football team has 11 players. How many boys are needed for 7 teams? _____

20) If there are 5280 feet in 1 mile, how many feet are in 6 miles? _____

21) 305 men ate 6 weiners a piece. How many weiners did they eat altogether? _____

22) A student can read 350 words per minute. How many words can he read in 8 minutes? _____

# MULTIPLICATION OF WHOLE NUMBERS D-7

Name _____ Period _____ Date _____

**Objective:** You will be able to multiply a two-digit number times a two-digit number, or a three-digit number.

Example 1

1st

$$\begin{array}{r} 34 \\ \times\ 12 \\ \hline 68 \end{array} \leftarrow 2 \times 34$$

2nd

$$\begin{array}{r} 34 \\ \times\ 12 \\ \hline 68 \leftarrow 2 \times 34 \\ 340 \leftarrow 10 \times 34 \\ \hline 408 \leftarrow 12 \times 34 \end{array}$$

Example 2

1st

$$\begin{array}{r} 234 \\ \times\ 21 \\ \hline 234 \end{array} \leftarrow 1 \times 234$$

2nd

$$\begin{array}{r} 234 \\ \times\ 21 \\ \hline 234 \leftarrow 1 \times 234 \\ 4680 \leftarrow 20 \times 234 \\ \hline 4914 \end{array}$$ is the answer

Complete the following:

1) $\begin{array}{r} 85 \\ \times\ 11 \\ \hline \_\_\_\_ \leftarrow 1 \times 85 \\ \_\_\_\_ \leftarrow 10 \times 85 \\ \hline \end{array}$ answer

2) $\begin{array}{r} 32 \\ \times\ 12 \\ \hline \_\_\_\_ \leftarrow 2 \times 32 \\ \_\_\_\_ \leftarrow 10 \times 32 \\ \hline \end{array}$ answer

3) $\begin{array}{r} 53 \\ \times\ 12 \\ \hline \_\_\_\_ \leftarrow 2 \times 53 \\ \_\_\_\_ \leftarrow 10 \times 53 \\ \hline \end{array}$ answer

4) $\begin{array}{r} 66 \\ \times\ 11 \\ \hline \_\_\_\_ \leftarrow 1 \times 66 \\ \_\_\_\_ \leftarrow 10 \times 66 \\ \hline \end{array}$ answer

5) $\begin{array}{r} 61 \\ \times\ 21 \\ \hline \_\_\_\_ \leftarrow 1 \times 61 \\ \_\_\_\_ \leftarrow 10 \times 61 \\ \hline \end{array}$ answer

6) $\begin{array}{r} 49 \\ \times\ 11 \\ \hline \_\_\_\_ \leftarrow 1 \times 49 \\ \_\_\_\_ \leftarrow 10 \times 49 \\ \hline \end{array}$ answer

On your own:

7) $\begin{array}{r} 72 \\ \times\ 21 \end{array}$

8) $\begin{array}{r} 11 \\ \times\ 22 \end{array}$

9) $\begin{array}{r} 21 \\ \times\ 23 \end{array}$

10) $\begin{array}{r} 44 \\ \times\ 22 \end{array}$

D-7 (cont)

Short cut:

Example: 46
x 32
92
138
1472

(omit zero if you like)

Example: 28
x 27
196
56
756

11) 44 x 71

12) 68 x 29

13) 76 x 40

14) 83 x 48

15) 602 x 88

16) 267 x 22

17) 556 x 73

18) 267 x 46

19) 302 x 20

20) 407 x 58

21) 631 x 91

22 631 x 13

23) 263 x 55

24) 21 x 39

25) 109 x 99

26) 347 x 46

27) 216 x 90

28) 342 x 34

29) 653 x 53

30) 314 x 32

31) If you received $834 each month for 14 months, how much would you have? _____

32) 409 records were given away every day for 17 days. How many records is that? _____

33) There are 25 students per class and there are 11 classes. How many students in all? _____

34) 180 days each year are spent in school. You go to school for at least 12 years, how many days have you been in school?

_____

# MULTIPLICATION OF WHOLE NUMBERS D-8

Name_____ Period_____ Date_____

Objective: You will be able to multiply any whole number by 10, 100, 1000.

Multiply:

Examples:

a) 9 x 10 = 90 b) 23 x 10 = 230

1) 2 x 10 = _____ 2) 10 x 7 = _____ 3) 21 x 10 = _____

4) 43 x 10 = _____ 5) 10 x 25 = _____ 6) 251 x 10 = _____

7) 5 x 10 = _____ 8) 10 x 333 = _____ 9) 29 x 10 = _____

10) 12 x 10 = _____

If the number 400 means four hundreds then we could write 4 x 100 = 400

Another example: 5 x 100 = 500 Another example: 100 x 25 = 2500

Look for a pattern as you multiply:

11) 5 x 100 = _____ 15) 55 x 100 = _____ 19) 9 x 100 = _____

12) 23 x 100 = _____ 16) 17 x 100 = _____ 20) 40 x 100 = _____

13) 22 x 100 = _____ 17) 4 x 100 = _____

14) 12 x 100 = _____ 18) 12 x 100 = _____

If the number 3000 means 3 thousands that we could write 3 x 1000 = 3000

Another example: 9 x 1000 = 9000 Another example: 1000 x 45 = 45,000

Look for a pattern:

Multiply:

21) 2 x 1000 = _____ 26) 15 x 1000 = _____

22) 1000 x 7 = _____ 27) 154 x 1000 = _____

23) 5 x 1000 = _____ 28) 1000 x 23 = _____

24) 1000 x 11 = _____ 29) 1000 x 0 = _____

25) 16 x 1000 = _____ 30) 326 x 1000 = _____

Multiply by 10: 2 x 10 = 20 31) 10 x 7 = _____

Multiply by 100: 100 x 5 = 500 32) 23 x 1000= _____

Multiply by 1000: 2 x 1000 = 2000 33) 1000 x 7 = _____

This seems to give a rule for multiplying a whole number by 10, 100, and 1000.

See if you can use this rule and do these exercises in less than 1 minute.

34) 3 x 10 = _____ 35) 100 x 5 = _____ 36) 10 x 21 = _____

37) 1000 x 6 = _____ 38) 17 x 1000 = _____ 39) 100 x 297 = _____

40) 78 x 10 = _____ 41) 156 x 1000 = _____ 42) 100 x 17 = _____

D-8 (cont)

43) 55 x 10 = _____ 44) 10 x 10 = _____

45) 100 x 100 = _____ 46) 156 x 100 = _____

47) 59 x 10 = _____ 48) 555 x 10 = _____

Write the rule for multiplying any whole number by 10, 100, 1000.

_____

_____

_____

_____

Multiply:

49) 43 x 10 = _____

50) 55 x 10 = _____

51) 68 x 100 = _____

52) 76 x 100 = _____

53) 88 x 100 = _____

54) 97 x 1000 = _____

55) 127 x 100 = _____

56) 45 x 1000 = _____

57) 123 x 10 = _____

58) 222 x 10 = _____

LEVEL D CHECKPOINT 5-8

Multiplication of Whole Numbers

Name _____

Period _____

Date _____

1. $\begin{array}{r} 67 \\ \times\ 9 \\ \hline \end{array}$

2. $\begin{array}{r} 58 \\ \times\ 6 \\ \hline \end{array}$

(D-5)

3. $\begin{array}{r} 468 \\ \times\ 6 \\ \hline \end{array}$

4. $\begin{array}{r} 732 \\ \times\ 9 \\ \hline \end{array}$

5. $\begin{array}{r} 567 \\ \times\ 8 \\ \hline \end{array}$

(D-6)

6. $\begin{array}{r} 68 \\ \times\ 29 \\ \hline \end{array}$

7. $\begin{array}{r} 569 \\ \times\ 78 \\ \hline \end{array}$

8. $\begin{array}{r} 347 \\ \times\ 46 \\ \hline \end{array}$

(D-7)

9. 100 x 23 = _____

10. 471 x 1000 = _____

(D-8)

LEVEL D A-CHECKPOINT 5-8 Name _____

Multiplication of Whole Numbers Period _____

Date _____

1. $\begin{array}{r} 76 \\ \times\ 9 \\ \hline \end{array}$

2. $\begin{array}{r} 85 \\ \times\ 6 \\ \hline \end{array}$

(D-5)

3. $\begin{array}{r} 486 \\ \times\ 7 \\ \hline \end{array}$

4. $\begin{array}{r} 372 \\ \times\ 9 \\ \hline \end{array}$

5. $\begin{array}{r} 675 \\ \times\ 8 \\ \hline \end{array}$

(D-6)

6. $\begin{array}{r} 83 \\ \times\ 48 \\ \hline \end{array}$

7. $\begin{array}{r} 659 \\ \times\ 78 \\ \hline \end{array}$

8. $\begin{array}{r} 473 \\ \times\ 69 \\ \hline \end{array}$

9. 1000 x 45 = _____

10. 732 x 100 = _____

(D-7)

(D-8)

Name _____ Period _____ Date _____

Objective: You will be able to multiply any whole number by multiples of ten.

Earlier you found that multiplying a whole number by 10 can be done by writing the whole number with a zero following it.

Example: 19 x 10 = _____

Multiplying by 100 can be done by placing 2 zeros behind the whole number and multiplying by 1000 can be done by using 3 zeros.

Example: 24 x 100 = _____ Example: 54 x 1000 = _____

Now you will learn to multiply by other numbers ending in zero.

Look at the examples below, see how the short method saves time.

| 413 x 2 | 413 x 20 | 413 x200 | SHORT METHOD | LONG METHOD |
|---|---|---|---|---|
| 826 | 8260 | 82600 | 413 x 2000 = 826000 | 413 x 2000 = 000 + 000 + 000 + 826 = 826000 |

1) 34 x 2 = 68, so 34 x 20 = (34 x 2) x 10 = 680

2) 42 x 3 = 126, so 42 x 30 = (42 x 3) x 10 = _____

3) 123 x 2 = 246, then 123 x 200 = _____

4) 65 x 5 = 325, then 65 x 5000 = _____

5) 78 x 7 = 546, then 78 x 70000 = _____

Multiply. Be sure you use the SHORT METHOD.

| | a | b | c | d | e |
|---|---|---|---|---|---|
| 6. | 43 x 3 | 43 x 30 | 43 x 300 | 43 x 3000 | 43 x 30000 |
| 7. | 25 x 7 | 25 x 70 | 25 x 700 | 25 x7000 | 25 x 70000 |

D - 9 (cont)

8. $241 \times 5$ $241 \times 50$ $241 \times 500$ $241 \times 5000$ $241 \times 50000$

9. $242 \times 4$ $242 \times 40$ $242 \times 400$ $242 \times 4000$ $242 \times 40000$

Do these any way you like.

10) $27 \times 2$ 11) $27 \times 20$ 12) $27 \times 200$

13) $36 \times 7$ 14) $36 \times 70$ 15) $36 \times 700$

16) $41 \times 8$ 17) $41 \times 80$ 18) $41 \times 800$

19) $971 \times 3$ 20) $971 \times 30$ 21) $971 \times 300$

Name_____Period_____Date_____

Objective: You will be able to multiply 3-digit numbers by 3-digit numbers.

When you multiply by a 3-digit factor, there are four steps.

Step 1: Multiply by the one's place.

$$\begin{array}{r} 234 \\ \times 471 \\ \hline 234 \end{array}$$ (1 x 234)

Step 2: Multiply by the ten's place 16380 (70 x 234)

Step 3: Multiply by the hundred's place 93600 (400 x 234)

partial products

Step 4: Add the partial products. 110214 Product

*Be sure to write the zeros, which keep the column on the right even. This helps you to avoid mistakes and reminds you of what the partial products mean.

Try one now on your own! Good luck!

Step 1: Multiply by the one's place

$$\begin{array}{r} 241 \\ \times\ 325 \\ \hline \_\_\_\_\_ \end{array}$$ (5 x 241)

Step 2: Multiply by the ten's place _____ (20 x 241)

Step 3: Multiply by the hundred's place _____ (300 x 241)

Step 4: Add the partial products. _____

Now try some more problems following the steps above.

1)
$$\begin{array}{r} 327 \\ \times\ 621 \\ \hline \_\_\_\_\_ \end{array}$$

_____ (1 x 327)

_____ (20 x 327)

_____ (600 x 327)

_____ Product

2)
$$\begin{array}{r} 343 \\ \times\ 627 \\ \hline \_\_\_\_\_ \end{array}$$

_____ (7 x 343)

_____ (20 x 343)

_____ (600 x 343)

_____ Product

3) 223 x 469

4) 232 x 326

5) 424 x 326

When any place has a digit of "0" you can skip that step.

SHORT METHOD

452 x 102

904
45200
46104

LONG METHOD

452 x 102

904
0000
45200
46104

Since there was a zero in the tens place, that step was skipped.

6) 220 x 402

7) 763 x 505

8) 328 x 203

9) 853 x 200

10) 802 x 570

LEVEL D CHECKPOINT 9- 10 Name _____

Multiplication of Whole Numbers Period _____

Date _____

1. $\begin{array}{r} 32 \\ \times\ 40 \\ \hline \end{array}$

2. $\begin{array}{r} 647 \\ \times\ 800 \\ \hline \end{array}$

3. 23 x 7000 = _____

4. $\begin{array}{r} 348 \\ \times\ 200 \\ \hline \end{array}$

(D-9)

5. $\begin{array}{r} 647 \\ \times\ 106 \\ \hline \end{array}$

6. $\begin{array}{r} 824 \\ \times\ 67 \\ \hline \end{array}$

7. $\begin{array}{r} 945 \\ \times\ 456 \\ \hline \end{array}$

8. $\begin{array}{r} 129 \\ \times\ 401 \\ \hline \end{array}$

9. $\begin{array}{r} 2327 \\ \times\ 212 \\ \hline \end{array}$

10. $\begin{array}{r} 847 \\ \times\ 692 \\ \hline \end{array}$

(D-10)

LEVEL D A-CHECKPOINT 9-10 Name _____

Multiplication of Whole Numbers Period _____

Date _____

1. $64 \times 30$

2. $835 \times 700$

3. $47 \times 400 =$ _____

4. $1384 \times 500$

(D-9)

5. $542 \times 103$

6. $842 \times 76$

7. $954 \times 564$

(D-10)

8. $219 \times 401$

9. $3272 \times 436$

10. $846 \times 972$



(D-10)

POST TEST LEVEL D Name _____

Multiplication of Whole Numbers Period _____

Date _____

1. In 4 x 5 = 20 What are the factors? _____

2. In 6 x 3 = 1 8 What is the product? _____

(D-1)

3. a) 6 x 9 = _____ 4. a) 8 x 0 = _____

b) 8 x 7 = _____ b) 4 x 7 = _____

5. a) 9 x 8 = _____ 6. a) 7 x 9 = _____

b) 7 x 7 = _____ b) 8 x 8 = _____

(D-2,3)

7. 4 0 2 8. 3 1 0 9. 1 0 0 4

x 1 x 3 x 2

(D-4)

10. 9 6 11. 5 8 12. 9 3

x 7 x 6 x 9

(D-5)

13. 8 6 4 14. 3 9 7 15. 7 6 8

x 7 x 6 x 5

(D-6)

Post Test Level D (Cont.)

16. 92 x 68

17. 965 x 78

18. 347 x 46

(D-7)

19. 31 x 1000 = _____

20. 401 x 10 = _____

21. 100 x 792 = _____ (D-8)

22. 485 x 30

23. 1927 x 200

24. 8056 x 800

(D-9)

25. 981 x 235

26. 405 x 201

27. 601 x 711

(D-10,11)

28. 1002 x 501

29. 827 x 179

30. 1608 x 546

(D-10,11)

# LEVEL REVIEW D

Name_____ Period_____ Date_____

Multiplication of Whole Numbers

1. In 2 x 3 = 6, what are the factors? _____

2. In 4 x 5 = 20, what is the product? _____

(D-1)

3. a) 9 x 9 = _____ e) 7 x 6 = _____

b) 8 x 9 = _____ f) 9 x 7 = _____

c) 8 x 7 = _____ g) 5 x 8 = _____

d) 6 x 9 = _____ h) 7 x 7 = _____

(D-2,3)

4. Mrs. Jones has 4 boxes of old greeting cards. There are 221 cards in each box. How many old greeting cards does he have?

_____

(D-4)

5.
$$\begin{array}{r} 372 \\ \times \quad 9 \\ \hline \end{array}$$

(D-6)

6.
$$\begin{array}{r} 659 \\ \times \quad 79 \\ \hline \end{array}$$

(D-7)

7. a) 1000 x 45 = _____

b) 732 x 100 = _____

(D-8)

8. 47 x 400 = _____

(D-9)

9.
$$\begin{array}{r} 842 \\ \times \quad 76 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 846 \\ \times 972 \\ \hline \end{array}$$

(D-10,11)

PRETEST LEVEL E

Division of Whole Numbers

Name _____

Period _____

Date _____

1. Circle the division problems, there are three

a) $4 \times 5$ b) $6 \div 2$ c) $57 - 4$ d) $4\overline{)28}$ e) $\frac{18}{6}$ f) $6 + 3$

2. MATCHING use corret letter

$$17\overline{)51}$$

3 ← ____

____ ← ____

____

a. dividend b. quotient

c. addend d. divisor

3. Write this problem of division three different ways.

Twenty divided by four

a) _____ b) _____ c) _____

(E-1)

4. $5\overline{)35}$

5. $7\overline{)63}$

6. $26 \div 2 =$ _____

7. $\frac{28}{4} =$ _____

(E-2)

8. $4\overline{)51}$ r

9. $8\overline{)77}$ r

10. $3\overline{)519}$

11. $8\overline{)3632}$

(E-3)

12. $7\overline{)5124}$

(E-4)

13. $4\overline{)77020}$



(E-4)

14) $8\overline{)3649}$ 15) $7\overline{)3142}$ 16) $9\overline{)8297}$

(E-5)

17) $13\overline{)6666}$ 18) $56\overline{)9783}$ 19) $31\overline{)3981}$

20) $286\overline{)9374}$ 21) $1201\overline{)34956}$

(E-6,7)

22) $200\overline{)8400}$ 23) $38\overline{)793}$ 24) $301\overline{)90902}$

Write remainders as fractions:

25) $37\overline{)9356}$ 26) $71\overline{)1439}$



(E-8)

# DIVISION OF WHOLE NUMBERS E-1

Name_____ Period_____ Date_____

| Objective: | You will be able to (1) write division problems three different ways. (2) write multiplication problems for any given division problem and (3) illustrate division problems on a number line. |
|---|---|

1) There are 20 x's below. Divide them into groups of 5 by drawing a circle around each group of 5.

x x x x x x x x x x

x x x x x x x x x x

2) How many groups of 5 did you get? _____ If you said 4, you are correct. 20 divided into groups of 5's makes 4 groups of 5.

3) Division means dividing into smaller <u>equal</u> groups. 20 divided into smaller groups of 5 makes _____ groups of 5

Do these:

4) $7\overline{)49}$ 5) $5\overline{)25}$ 6) $6\overline{)42}$ 7) $9\overline{)81}$

8) $8\overline{)72}$ 9) $9\overline{)54}$ 10) $6\overline{)48}$ 11) $4\overline{)20}$

12) $4\overline{)32}$ 13) $7\overline{)63}$ 14) $9\overline{)45}$ 15) $8\overline{)64}$

16) $6\overline{)36}$ 17) $5\overline{)35}$ 18) $4\overline{)12}$ 19) $7\overline{)28}$

20) $9\overline{)36}$ 21) $8\overline{)56}$ 22) $3\overline{)18}$

23) $3\overline{)12}$ = _____ $\frac{12}{4}$ = _____ $12 \div 3$ = _____

24) $4\overline{)16}$ = _____ $16 \div 4$ = _____ $\frac{16}{4}$ = _____

Write each division problem two other ways.

25) $6\overline{)24}$ _____ _____

26) $\frac{30}{5}$ _____ _____

27) $18 \div 9$ _____ _____

E-1 (cont)

In the division problem "20 divided by 4 is 5":

20 is the DIVIDEND
4 is the DIVISOR
5 is the QUOTIENT

$4\overline{)20}^{\,5}$ $\quad \frac{20}{4} = 5 \quad 20 \div 4 = 5$

Fill in the blanks with the correct term:

| | | DIVIDEND | DIVISOR | QUOTIENT |
|---|---|---|---|---|
| 28. | $\frac{15}{3} = 5$ | 15 | 3 | 5 |
| 29. | $\frac{32}{4} = 8$ | | | |
| 30. | $24 \div 6 = 4$ | | | |
| 31. | $4\overline{)36}^{\,9}$ | | | |
| 32. | $48 \div 6 = 8$ | | | |
| 33. | $5\overline{)45}^{\,9}$ | | | |
| 34. | $\frac{18}{6} = 3$ | | | |

$\begin{array}{r} 5 \\ +3 \\ \hline 5 \end{array}$ addends / sum $\qquad \begin{array}{r} 9 \\ -\,5 \\ \hline 4 \end{array}$ minuend / subtrahend / difference $\qquad$ divisor $\quad$ quotient

$9\overline{)27}^{\,3}$

dividend

Write the letter of the correct term for the circled number:

| | | | |
|---|---|---|---|
| 35. | _____ | (5) + 7 = 12 | A. Product |
| 36. | _____ | $(8)\overline{)40}^{\,5}$ | B. Dividend |
| 37. | _____ | 7 - 4 = (3) | C. Difference |
| 38. | _____ | 3 x 8 = (24) | D. Factor |
| 39. | _____ | $\frac{42}{6} = (7)$ | E. Quotient |
| 40. | _____ | 8 x (9) = 72 | F. Subtrahend |
| 41. | _____ | (15) - 6 = 9 | G. Divisor |
| 42 | _____ | (54) ÷ 6 = 9 | H. Minuend |
| 43. | _____ | 10 - (4) = 6 | I. Addend |
| 44. | _____ | 9 + 9 = (18) | J. Sum |
| 45. | _____ | $2\overline{)(14)}^{\,7}$ | |

DIVISION OF WHOLE NUMBERS E-2

Name _____ Period _____ Date _____

Objective: You will be able to divide a 2 digit number by a 1 digit number without remainders.

Dividing a 2 digit number by a one digit number.

(1) $7\overline{)84}$

$7\downarrow = 7 \times 1$

14

$14 = 7 \times 2$

Check: $7 \times 12 = 84$

(2) $6\overline{)72}$

$6\downarrow = 6 \times 1$

12

$12 = 6 \times 2$

Check: $6 \times 12 =$ _____

Remember: Bring down only 1 number at a time.

(3) $5\overline{)75}$

Check: $6 \times$ _____ $= 75$

(4) $7\overline{)98}$

Check: ___ x ___ = ___

(5) $3\overline{)57}$

Check: $3 \times$ ___ $= 57$

(6) $4\overline{)61}$

Check: $3 \times$ ___ $= 57$

(7) $3\overline{)18}$

Check: ___ x ___ = ___

(8) $6\overline{)36}$

Check: _____

(9) $7\overline{)49}$

Check: _____

(10) $5\overline{)35}$

Check: _____

(11) $9\overline{)63}$

Check: _____

(12) $2\overline{)36}$

(13) $5\overline{)85}$

(14) $8\overline{)32}$

Remember check by multiplying.

(15) $7\overline{)91}$

(16) $3\overline{)21}$

(17) $8\overline{)96}$

(18) $3\overline{)45}$

(19) $7\overline{)56}$

(20) $9\overline{)99}$

E-2 page 2

Name _____

(21) $4\overline{)52}$ (22) $6\overline{)78}$ (23) $9\overline{)45}$

(24) $7\overline{)77}$ (25) $6\overline{)90}$ (26) $2\overline{)92}$

(27) $4\overline{)68}$ (28) $3\overline{)66}$

Sometimes it is helpful to rewrite the division problem in a different form before dividing.

$45 \div 9$ may be written as $9\overline{)45}$

$\frac{45}{9}$ may be written as $9\overline{)45}$

Rewrite when necessary before dividing:

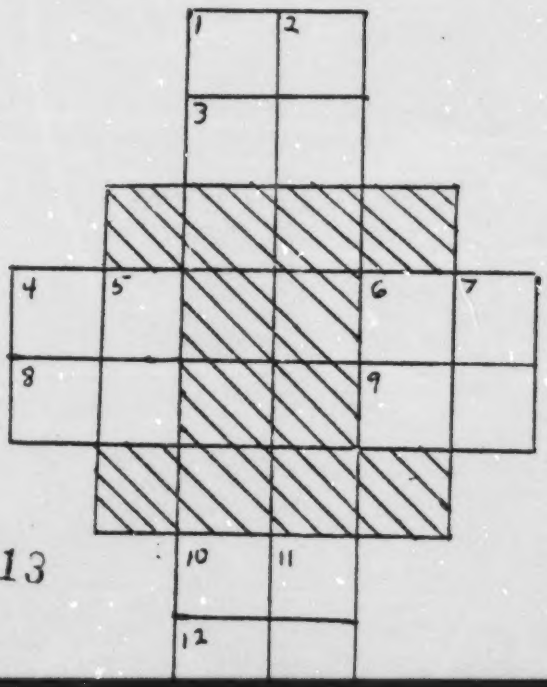
(29) $54 \div 6 =$ _____ $6\overline{)54}$ (30) $\frac{77}{7} =$ _____

(31) $6\overline{)90} =$ _____ (32) $92 \div 2 =$ _____

(33) $\frac{68}{4} =$ _____ (34) $66 \div 3 =$ _____

(35) Cross number puzzle (whole numbers - division)

| | Down | | Across | |
|---|---|---|---|---|
| 1 | $37 \div 3$ | 1 | $36 \div 3$ |
| 2 | $46 \div 2$ | 3 | $99 \div 3$ |
| 4 | $48 \div 4$ | 4 | $28 \div 2$ |
| 5 | $88 \div 2$ | 6 | $63 \div 3$ |
| 6 | $86 \div 4$ | 8 | $48 \div 2$ |
| 7 | $44 \div 4$ | 9 | $42 \div 2$ |
| 10 | $69 \div 3$ | 10 | $66 \div 3$ |
| 11 | $84 \div 4$ | 12 | $94 \div 3$ |

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# DIVISION OF WHOLE NUMBERS E-3

Name _____ Period _____ Date _____

**Objective:** You will be able to divide a two-digit number by a one-digit number with remainders.

1) Circle groups of three below.

x x x
x x x x
x x x

2) Did you have any left over? _____

3) How many were left over? _____

4) The group left over is called a remainder.

5) Circle the groups of 4 below.

y y y y
y y y y
y

6) Did you have any left over? _____

7) How many were left over? _____

8) The group left over is called a _____.

9) Circle the groups of 6 below.

w w w w w
w w w w w w
w w w w

10) Did you have any left over. _____

11) How many were left over? _____

12) This group left over is called a _____.

Study this problem:

$$\begin{array}{r} 5 \\ 3\overline{)\,17} \\ -15 \\ \hline 2 \end{array}$$

2 = remainder

This problem does not divide evenly. 2 is left over. 2 is called the _____.

We usually write the answer as 5 R 2, R stands for _____.

Write only the remainders for the following:

13) $2\overline{)\,43}$ R = _____

14) $47 \div 2$ R = _____

15) $\frac{66}{2}$ R = _____

16) $\frac{29}{2}$ R = _____

17) $2\overline{)\,81}$ R = _____

18) $36 \div 2$ R = _____

19) $2\overline{)\,77}$ R = _____

When you check a problem like this, multiply 6 by 4 and then add 1. The answer you get sould equal the dividend. (25 in this case)

Example:
$$\begin{array}{r} 4 \\ 6\overline{)\,25} \\ -24 \\ \hline 1 \end{array}$$

Check: (6 x 4) + 1 = _____

Work these problems:

20) $6\overline{)\,75}$ 21) $7\overline{)\,86}$ 22) $6\overline{)\,40}$

Check: (6 x ___) + 3 = ___ (7 x ___) + 2 = ___ (___X___) + ___ = 40

Continue: Check each problem.

23) $5\overline{)\,68}$ 24) $4\overline{)\,49}$ 25) $6\overline{)\,74}$

26) $3\overline{)\,85}$ 27) $7\overline{)\,62}$

28) When dividing with 2 the largest remainder you could possibly have is _____.

29) $7\overline{)\,36}$ 30) $7\overline{)\,40}$ 31) $7\overline{)\,48}$

Check: (7 x 5) + 1 = 36 Check: Check:

32) $7\overline{)\,49}$ Check:

33) The largest remainder possible when you divide by 7 is _____

34) Why do we come out with remainders when dividing? _____

_____

35) Brain teaser: Look at problems 13 and 19. What can you discover about the remainder when dividing by 2? _____

36) What can you say about the remainder when dividing by 3? _____

_____.

37) When will there be no remainder in a division problem? _____

_____

Name_____ Period_____ Date_____

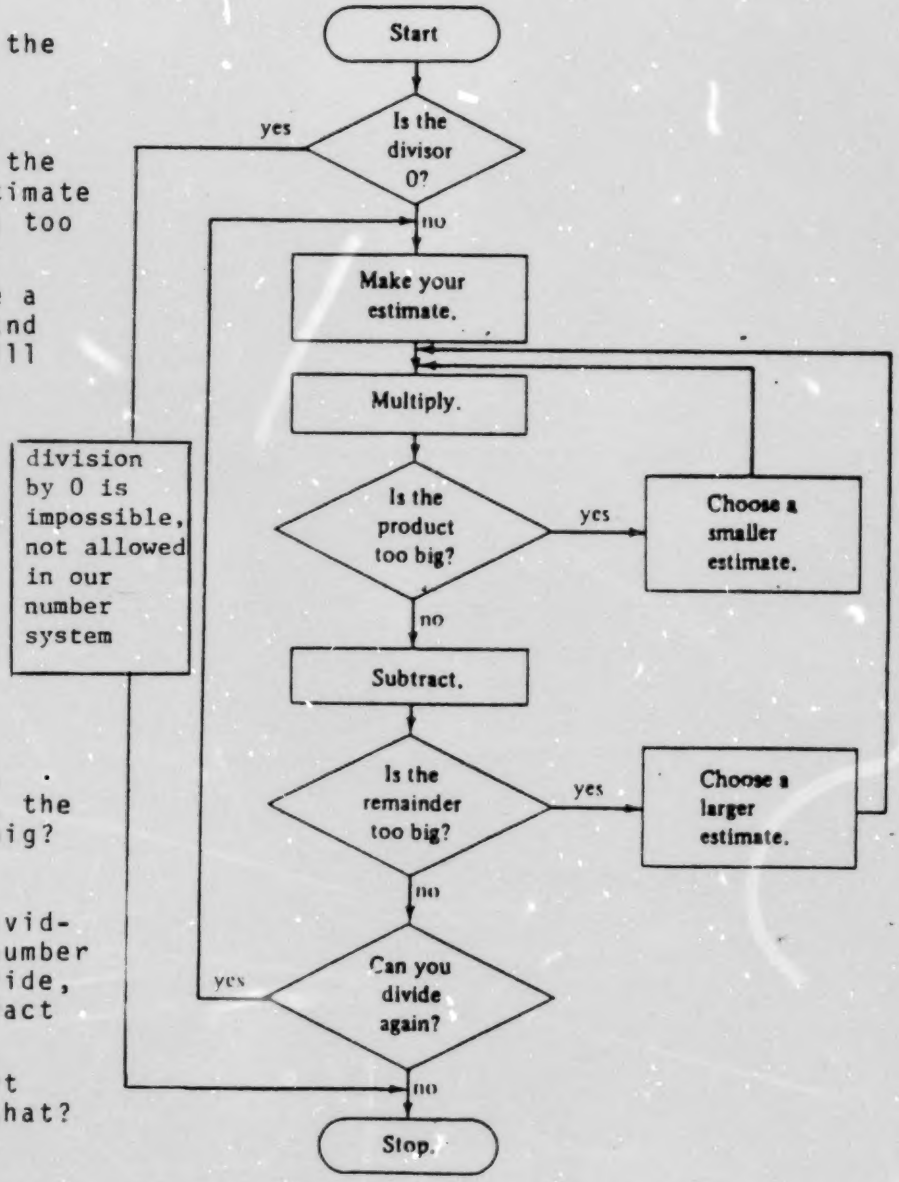
| Objective: You will be able to divide a number of 3 or more digits by a 1 digit number with no remainder. |
|---|

Flow Chart: A flow chart is a diagram which helps to organize steps in doing something. Here is a flow chart for dividing. See if you can follow it.

1. What do you do if the divisor is zero?

2. What do you do if the product of the estimate and the divisor is too big?

   Suppose you choose a smaller estimate and you find it is still too big. What do you do then?




3. What do you do if, when you subtract, the remainder is too big?

4. Suppose you are dividing a very large number where you must divide, multiply and subtract many times.

   Does the flow chart direct you to do that?

   Where

5. What happens when you cannot divide anymore?

Divide using the chart: (don't forget to check them)

1) $3\overline{)396}$ = 132

Check: $132 \times 3 = 396$

2) $2\overline{)448}$

3) $4\overline{)1244}$

4) $5\overline{)555}$

6) $3\overline{)639}$

7) $4\overline{)488}$

8) $6\overline{)666}$

9) $5\overline{)155}$

The problems in this lesson are no more difficult then previous lessons. They just take a little longer to do.

10) $4\overline{)145}$

11) $4\overline{)136}$

12) $6\overline{)258}$

13) $3\overline{)4113}$

14) $8\overline{)3512}$

15) $7\overline{)1519}$

16) $4\overline{)153868}$

17) $9\overline{)29529}$

18) $6\overline{)126}$

LEVEL E CHECKPOINT 1-4

Division of Whole Numbers

Name _____

Period _____

Date _____

1. Write this division problem two other ways

$4\overline{)8}$ a) _____ b) _____

2. MATCHING use the correct letter

$3\overline{)15}$ 5 ← ____ 15 ← ____ ____

a. divisor b. factor c. quotient d. dividend

(E-1)

3. $49 \div 7 =$ _____

4. $9\overline{)63}$

5. $7\overline{)98}$

(E-2)

6. $3\overline{)17}$ r

7. $6\overline{)40}$ r

8. $9\overline{)86}$ r

(E-3)

9. $7\overline{)1519}$

10. $8\overline{)3512}$

(E-4)

LEVEL E A- CHECKPOINT 1-4 Name _____

Division of Whole Numbers Period _____

Date _____

1. MATCHING use the correct letter

$\begin{array}{r} 6 \leftarrow \_\_\_ \\ 4\overline{)24} \leftarrow \_\_\_ \\ \leftarrow \_\_\_ \end{array}$ a. factor b. quotient c. dividend d. divisor

2. Write this division two other ways

$\frac{12}{3}$ a) _____ b) _____

(E-1)

3. $56 \div 8 =$ _____

4. $5\overline{)45}$

5. $7\overline{)98}$

(E-2)

6. $4\overline{)27}$ r

7. $6\overline{)43}$ r

8. $4\overline{)86}$ r

(E-3)

9. $6\overline{)222}$

10. $9\overline{)3789}$

(E-4)

# DIVISION OF WHOLE NUMBERS E-5

Name_____ Period_____ Date_____

| Objective: You will be able to divide a number of three or more digits by a one digit with remainders. |
|---|

As we have previously learned, some division problems have remainders.

1) Example:

```
   2736  R. 2
5) 13682
   10
   36
   35
    18
    15
     32
     30
      2  = R. 2
```

Check: (5 x _____) + 2 = 13682

Don't forget to check each problem:

2) $4\overline{)253}$

3) $6\overline{)368}$

4) $7\overline{)227}$

Check: 4 x ____ + ____ = 253

5) $2\overline{)223}$

6) $5\overline{)149}$

7) $3\overline{)227}$

8) $8\overline{)7291}$

9) $4\overline{)7651}$

10) We have 144 candy bars and want to divide them evenly among 8 kids.

How many will each person receive? _____

How many will be left over? _____

Why could you not have 8 left over? _____

_____

E-5 (cont)

11) A grocer just received 625 pounds of potatoes. He wants to put them into paper sacks, each containing 7 pounds. How many sacks will he need? _____

How many will be left over? _____

Why could you not have 8 left over? _____

_____

12) Three boys together earned $168 one summer mowing lawns. If each boy receives the same amount of money, how much will each receive? _____

13) 8 ÷ 3 = _____R_____

14) 29 ÷ 4 = _____R_____

15) 89 ÷ 5 = _____R_____

16) 153 ÷ 8 = _____R_____

17) 263 ÷ 9 = _____R_____

18) 756 ÷ 5 = _____R_____

19) 544 ÷ 7 = _____R_____

20) 5434 ÷ 3 = _____R_____

21) 12345 ÷ 2 = _____R_____

22) 6545 ÷ 3 = _____R_____

23) 777 ÷ 7 = _____R_____

24) 731 ÷ 6 = _____R_____

25) 1575 ÷ 5 = _____R_____

# DIVISION OF WHOLE NUMBERS E-6

Name_____Period_____Date_____

| Objective: You will be able to divide by 1, 2 or 3 digit divisors with or without remainders. |
|---|

If you are having troubles with your division problems, try solving some the following way.

Here's the problem ---------- $6\overline{)3774}$

STEP 1. Make a chart of multiples for the divisor of the problem

| divisor 6 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| multiples | 0 | 6 | 12 | 18 | 24 | 30 | 36 | 42 | 48 | 54 |

STEP 2. Will 6 go into 3? Yes or No
Will 6 go into 37? Yes or No

STEP 3. Find the largest multiple not going over 37 from the chart. The answer 36 and the number above it is 6. So put 6 above the number 7 in the problem and put 36 below 37 and subtract.

$$\begin{array}{r} 6 \\ 6\overline{)3774} \\ -36 \\ \hline 1 \end{array}$$

STEP 4. Bring down the next 7 in the problem.
Find the largest multiple not going over 17 from the chart. The answer is 12 and the number above it is 2. So put 2 above the second 7 in the problem and put 12 below 17 and subtract.

$$\begin{array}{r} 62 \\ 6\overline{)3774} \\ -36\downarrow \\ \hline 17 \\ -12 \\ \hline 5 \end{array}$$

STEP 5. Bring down the 4 in the problem.
Find the largest multiple not going over 54 from the chart. The answer is 54 and the number above it is 9. So put 9 above the 4 in the problem and put 54 below 54 and subtract. You were lucky there was no remainder.

$$
\begin{array}{r}
\phantom{6)}\;\;9\;\;7\;\;4 \\
6\overline{)\;3\;7\;7\;4} \\
\underline{-3\;6\phantom{\;\;4}} \\
\phantom{-}1\;7\phantom{\;\;4} \\
\underline{-1\;2\phantom{\;\;4}} \\
\phantom{-}5\;4 \\
\underline{-5\;4} \\
\phantom{-}0
\end{array}
$$

Now try a couple of problems with the same divisor 17. Use the chart below to help you.

| divisor 17 | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 |
|---|---|---|---|---|---|---|---|---|---|---|
| multiples | 0 | 17 | 34 | 51 | 68 | 85 | 102 | 119 | 136 | 153 |

1. $17\overline{)\;8\;9\;7\;6}$

2. $17\overline{)\;1\;5\;4\;7}$

3. $17\overline{)\;8\;7\;5\;6}$

4. $17\overline{)\;3\;8\;7\;9}$

5. $17\overline{)\;4\;3\;7\;1}$

6. $17\overline{)\;7\;9\;6\;3\;4}$

# DIVISION OF WHOLE NUMBERS E-7

Name_____ Period_____ Date_____

| Objective: You will be able to divide by 2 and 3 digit numbers -- with or without remainders. |
|---|

divisor → $5\overline{)10}$ ← quotient (2)

↑ dividend

Here is a way of attacking any division problem no matter how hard it is. This is a good old way of doing division.

Problem: $34\overline{)8705}$

Step 1: $34\overline{)8705}$

Does 34 go into 8? Yes (No)
So, there will be no digit in the quotient above the 8.

Step 2: $\overset{X}{34\overline{)8705}}$

Does 34 go into 87? (Yes) No
So, the first digit in the quotient goes above the 7. This is your starting point.

Step 3: Decide how many digits will be in your quotient. There must be one digit in your quotient for every digit in your divisor once you've found your starting point.

$\overset{X}{34\overline{)8705}}$

There will be how many digits in the quotient? _____

(I hope you said three)

Step 4: Estimate

EXAMPLE 1.

$$\begin{array}{r} 4 \\ 23\overline{)989} \\ -92 \\ \hline 6 \end{array}$$

Think:

9 ÷ 2 = 4

4 x 23 = 92

98 - 92 = 6

$$\begin{array}{r} 4 \\ 23\overline{)989} \\ -92\downarrow \\ \hline 69 \end{array}$$

Bring down the next digit.

$$\begin{array}{r} 43 \\ 23\overline{)989} \\ -92\downarrow \\ \hline 69 \\ -69 \\ \hline 0 \end{array}$$

Think:

6 ÷ 2 = 3

3 x 23 = 69

69 - 69 = 0

Problems:

1) $24\overline{)267}$

2) $42\overline{)897}$

3) $31\overline{)961}$

4) $21\overline{)672}$

EXAMPLE 2.

```
      9
21 | 199 95
    -189
     10
```

Think:

19 ÷ 2 = 9

9 x 21 = 189

199 - 189 = 10

```
      9
21 | 19995
    -189↓
     109
```

Bring down the next digit

```
      95
21 | 19995
    -189↓
     109
    -105
       4
```

Think:

10 ÷ 2 = 5

5 x 21 = 105

109 - 105 = 4

```
      95
21 | 19995
    -189↓
     109
    -105↓
      45
```

Bring down the next digit

```
     952 R3
21 | 19995
    -189↓
     109
    -105↓
      45
     -42
       3
```

Think:

4 ÷ 2 = 2

2 x 21 = 42

45 - 42 = 3

Problems:

1) 32 | 2325

2) 52 | 7563

3) 81 | 972

4) 321 | 23257

EXAMPLE 4:

Estimation works almost all of the time. But, if estimation won't work, use your rounding skills.

Problem: $19\overline{)99}$ When the estimation method doesn't work, we <u>round</u> the <u>divisor</u>.

Think: 19 rounded to the nearest 10 is <u>20</u>.

$9 \div 2 = 4$

$4 \times 19 = 76$

$99 - 76 = 23$

Because 23 is larger than the divisor, the 4 was not large enough. We should try larger; $4 + 1 = 5$.

$5 \times 19 = 95$

$99 - 95 = 4$

It works!!!!

** When using the rounding method, we may have two choices if our first estimate doesn't work-to go 1 higher <u>or</u> 1 lower

Problems:

1) $17\overline{)324}$

2) $491\overline{)8093}$

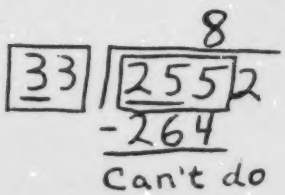
3) $19\overline{)723}$

4) $298\overline{)1057}$

5) $199\overline{)8213}$

6) $18\overline{)5634}$

EXAMPLE 3:




Think:

25 ÷ 3 = 8

8 x 33 = 264

255 - 264 = can't do

This shows that estimation is not always exact. But it should always come within one digit of your actual answer. Now we need to try 1-digit lower.

Which digit is our only choice in the above problem? _____
(I hope you said seven.)

Since 8 x 33 was too large, you should try 7 x 33.

Problems:

1) $35\overline{)675}$

2) $57\overline{)4372}$

3) $65\overline{)9000}$

4) $46\overline{)52113}$

5) $48\overline{)5634}$

6) $271\overline{)8452}$

# DIVISION OF WHOLE NUMBERS E - 8

Name_____ Period_____ Date_____

| Objectives: | You will be able to divide problems containing zeros in the divisor, dividend and/or quotient, and express remainder in fractional form. |
|---|---|

When there are zeros in a problem you must be extra careful not to forget part of your answer.

REMEMBER: Each time you bring down a digit, a digit must also be added to the answer. Follow the example and work the problems below.

Examples:

```
      101                    150
   9) 909                 2) 300
      9↓  ← 1 x 9            2      1 x 2
      00                     10
       0  ← 0 x 9            10     5 x 2
       9                      0
       9  ← 1 x 9             0     0 x 2
```

Check: 9 x 101 = _____ Check: 2 x 150 = _____

1) 3)870 2) 4)8400 3) 4)2008 4) 5)2050

5) 3 boys have 210 marbles. If they divide them equally, how many marbles will each boy receive? _____

6) 2 boys have 4014 bottle caps. How many should each receive if they both take the same amount? _____

7) 5 airplanes hold 900 passengers. One airplane would hold _____ passengers.

Do these and then check:

8) 20)220 9) 30)9090

10) 101)1111 11) 702)35100

E-8 (cont)

A different look at the remainder.

Study these examples:

$$3\overline{)\,10}\quad 3 \text{ r } 1 \qquad\qquad 3\overline{)\,10}\quad 3\tfrac{1}{3}$$

$$\underline{9} \qquad\qquad \underline{9}$$

$$1 = \text{remainder} \qquad\qquad 1$$

Note: the $\frac{1}{3}$ in our answer is the remainder over the divisor

Check: $(3 \times 3) + 1 = 10$ $\qquad$ $3 \times 3\frac{1}{3} = 10$

Complete these:

12) $7\overline{)\,22}$ $\quad$ 3 r 1 $\quad$ ___ Remainder / 7 divisor

$\underline{21}$

1 remainder

13) $2\overline{)\,9}$ $\quad$ 4 r 1 $\quad$ ___ remainder / ___ divisor

$\underline{8}$

1 remainder

14) $21\overline{)\,31}$ $\quad$ 1 $\frac{10}{}$ d / divisor

Divide and write the remainder as fractions.

15) $3\overline{)\,7}$

16) $2\overline{)\,9}$

17) $13\overline{)\,28}$

18) $14\overline{)\,36}$

19) $17\overline{)\,237}$

20) $19\overline{)\,371}$

21) There are 385 grains of salf in a shaker. If three students each want the same amount, how many grains can each student have? _____ (Make your remainder in fractional form)

22) There are 329 girls at Franklin. How many teams are there if there are 9 on each team? _____

23) There are 234 words on a typed page. If there are 14 lines, how many words per line? _____

24) $13\overline{)\,4\,6\,7}$

(You write a problem) _____

_____

_____

_____

LEVEL E CHECKPOINT 5 - 8

Division of Whole Numbers

Name _____

Period _____

Date _____

1. $7\overline{)227}$ r

2. $5\overline{)1497}$ r

(E-5)

3. $82\overline{)987}$

4. $11\overline{)6526}$

5. $32\overline{)731}$

6. $75\overline{)1683}$

7. $286\overline{)8452}$

(E-6,7)

8. $20\overline{)840}$

9. $702\overline{)35100}$

10. $13\overline{)28}$

Write remainder as a fraction

(E-8)

LEVEL E A - CHECKPOINT 5 - 8

Division of Whole Numbers

Name _____

Period _____

Date _____

1. $2\overline{)5433}$ r

2. $12345 \div 2 =$ _____

(E-5)

3. $91\overline{)897}$

4. $13\overline{)9828}$

5. $28\overline{)371}$

6. $48\overline{)6183}$

7. $371\overline{)4852}$

(E-6,7)

8. $4\overline{)8400}$

9. $50\overline{)20200}$

10. $19\overline{)371}$ write remainder as a fraction

(E-8)

POST TEST LEVEL E

Division of Whole Numbers

Name _____

Period _____

Date _____

1. Circle the three divisions problems below.

a) 25 - 5 b) 24 ÷ 8 c) 6 x 3 d) $\frac{12}{3}$ e) $6\overline{)18}$ f) 4 + 8

2. MATCHING use correct letter

a. product b. dividend

c. quotient d. divisor

$$5\overline{)35}$$

7 ← ____

35 ← ____

____

3. Write this division problem three different ways.

Sixteen divided by two

a) _____ b) _____ c) _____

(E-1)

4. $4\overline{)28}$

5. $9\overline{)63}$

6. 27 ÷ 9 = _____

7. $\frac{32}{8}$ = _____

(E-2)

8. $3\overline{)47}$ r

9. $8\overline{)76}$ r

10. $7\overline{)512}$ r

(E-3)

11. $8\overline{)3488}$

12. $9\overline{)5796}$

13. $5\overline{)34725}$

14. $4\overline{)6852}$

Posttest E (cont)

15) $7\overline{)685}$ 16) $4\overline{)6743}$ 17) $9\overline{)4637}$

(E-5)

18) $73\overline{)5067}$ 19) $47\overline{)5691}$ 20) $79\overline{)4654}$

21) $301\overline{)5731}$ 22) $1321\overline{)43563}$

(E-6,7)

23) $300\overline{)96000}$ 24) $23\overline{)6452}$ 25) $402\overline{)41406}$

Write the Remainders as Fractions:

26) $32\overline{)749}$ 27) $17\overline{)34517}$



(E-8)

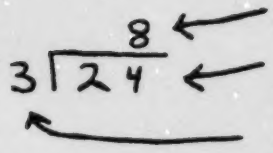
LEVEL REVIEW E

Name_____ Period____ Date_____

Division of Whole Numbers

1. Write this division two other ways.

$\frac{12}{3}$ a)_____ b)_____

2. 


_____

_____

_____

Dividend, Divisor, Quotient

(E-1)

3. $7\overline{)98}$ 4. $4\overline{)27}^{r}$

5. $9\overline{)3789}$

(E-4)

6. $12345 \div 2 =$ _____

(E-5)

7. $91\overline{)897}$ 8. $57\overline{)6183}$ 9. $371\overline{)4852}$

(E-6,7)

10. $50\overline{)20200}$ 11. $19\overline{)371}$ Write remainder as a fraction.

(E-8)

Name _____ Period _____ Date _____

PRETEST LEVEL F WORKING WITH WHOLE NUMBERS

1) The symbol < means _____ than.

2) Arrange these numbers from largest to smallest

83, 59, 67, 76, 87, 57, 64 _____

3) Use the correct symbols < or > for the following problems.

3a) 45 ____ 44

b) 3000 ____ 29999

4a) Twenty five ____ twenty four

b) Three thousand ____ two thousand nine hundred eighty seven

(F-1)

Fill in the Blanks

5) 57 + ____ = 76

6) ____ - 23 = 14

7) ____ + 12 = 72

8) 54 ÷ ____ = 9

9) 47 - ____ = 28

10) ____ ÷ 13 = 12

(F-2)

11) Write this problem using three different symbols for multiplication. Eight times Four

a) _____ b) _____ c) _____

12) 7 x 8 = N N =

13) 6w = 30 w =

14) 4n = 64 n =

15) t x t = 49 t =

(F-3)

16) $3^4$ the _____ is the exponent

the _____ is the base

Solve:

17) $3 \times 2^3$ = _____

18) $5^2 \times 2$ = _____

Write using exponents:

19) 2 x 2 x 2 x 2 = _____

20) a a a b b = _____

(F-4)

21) 2 + 4 x 7 = _____

22) 5 x 6 + 3 = _____

23) 3 + 4 x 2 + 6 x 1 = _____

(F-5)

24) 6 - (3 x 2 + 4 - 5) = _____

25) 32 ÷ 8 + [4 x (2 - 1)] = 135

26) 6 + {4 x [8 - (3 + 2)]} = _____

PRETEST LEVEL F (con't)

(F-6)

Find the average of the following.

27) 83, 72, 67 _____

28) 4, 6, 8, 5, 4, 3, 8, 7, 9 _____

29) What number is halfway between

137 and 415 _____

30) 171, 163, 165, 201, 185 _____

(F-7)

Fill in the blanks with add, subtract, multiply and divide

31) Don is twice as old as his sister who is 9 years old. To find out how old Don is you can _____.

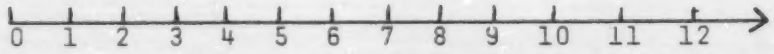
32) Janet baked 4 dozen cookies for her class but her brother ate 7 cookies. To find how many cookies were left you can _____ and then _____.

WORKING WITH WHOLE NUMBERS F-1

Name_____Period_____Date_____

| Objectives: | You will be able to write a series of numbers in ascending or descending order.<br>Use symbols " and ". |
|---|---|

Numbers on a number line are written in ascending order (from smallest to largest) starting on the left and moving to the right.




Putting a list of numbers in ascending order is easy if you think of the number line.

1. Put this list of numbers (2,6,1,8,3,4) in ascending order:

   (1,2,3,4,6,8)

Put these lists of numbers in ascending order:

2. (3,8,4,6,5,)_____
3. (0,5,2,6,8,1)_____
4. (3,8,9,4,1,0)_____
5. (8,6,9,0,4)_____

Putting numbers in descending order (largest to smallest) is the opposite of putting them in ascending order:

6. (8,4,7,6,3,1,0) = (8,7,6,4,3,1,0)
7. (0,4,6,1,3,5) = _____
8. (3,8,9,21,24) = _____
9. (41,38,61,36,49) = _____
10. (89,63,41,36,25,40) = _____

Put these lists of numbers in the order specified:

11. (4,8,9,13,2,7,) ascending = _____
12. (8,14,89,13,24) descending= _____
13. (0,2,4,6,8,12) descending=_____
14. (8,9,4,6,7,101) ascending =_____
15. (0,9,4,13,29,86,17,58,79) descending = _____

The following numbers have been arranged in either ascending or descending order. Write which order it is in the blank:

16. (2,8.16,29,107) = _____
17. (16,15,14,13,12) = _____
18. (2,4,6,8) = _____
19. (8,101,203,406) = _____
20. (101,96,85,76) = _____

In comparing two numbers we may use symbols to show which number is GREATER THAN "$>$" or LESS THAN "$<$" the other.

Example: Six is greater than five would be written as $6 > 5$.
Seven is less than eight would be written as $7 < 8$.

(21) $<$ means _____.

(22) $>$ means _____.

Place the correct symbol $>$ or $<$ between each pair of numbers to make the statement correct.

(23) 8 _____ 10

(24) 9 _____ 50

(25) 20 _____ 11

(26) 33 _____ 32

(27) 34 _____ 1

(28) 88 _____ 78

(29) 99 _____ 88

(30) 107 _____ 106

(31) 22 _____ 200

(32) 18 _____ 42

(33) 12 _____ 19

(34) 66 _____ 38

(35) 36 _____ 38

(36) 59 _____ 87

(37) 36 _____ 46

(38) 59 _____ 49

(39) 38 _____ 48

(40) 26 _____ 38

(41) 51 _____ 49

(42) 36 _____ 27

(43) 87 _____ 29

(44) 63 _____ 47

(45) 35 _____ 19

Place the correct symbol $<$ or $>$ between each pair of numerals to make the statement correct.

(46) Three hundred thirty _____ three hundred three.
You should have used "$>$" in the above problem.

(47) Three thousand two hundred sixty ____ three thousand four hundred sixty.

(48) Five hundred _____ four hundred ninety nine.

(49) Thirty-three _____ thirty-six.

(50) Four thousand, three hundred ninety-three _____ four thousand, three hundred ninety two.

(51) 947 _____ nine hundred forty-six.

(52) Forty-nine _____ 50.

(53) Three hundred thirty-five _____ 336.

(54) 399 _____ 400

Name _____ Period ____ Date _____

Objective: You will be able to supply the missing addends, factors and parts of Subtraction and Division problems.

To find a missing addend (completing an addition problem) subtract the given addend from the sum.

Example: 9 + _____ = 14 Subtract 9 from 14

Answer is 5

$$\begin{array}{r} 14 \\ -\ 9 \\ \hline 5 \end{array}$$

Try these:

1) 26 + ____ = 28

2) 13 + ____ = 18

3) ____ + 10 = 32

4) 51 + ____ = 72

5) 3 + ____ = 42

6) ____ + 16 = 72

7) ____ + 7 = 11

8) ____ + 21 = 40

9) 55 + ____ = 63

10) ____ + 5 = 101

To find a missing factor (completing a multiplication problem) divide the given factor into the product.

Example: 3 x ___ = 15 divide 15 by 3 $3\overline{)15}$ (5)

Answer is 5

Try these:

11) 4 x ____ = 28

12) ____ x 8 = 0

13) ____ x 3 = 72

14) 7 x ____ = 63

15) 11 x ____ = 66

16) ____ x 6 = 78

17) 21 x ____ = 357

18) ____ x 8 = 64

19) ____ x 40 = 360

20) 32 x ____ = 224

Now we are going to find missing parts of Subtraction problems. It depends on what part is given so look at the following examples.

a) 14 - ____ = 8

If the center part (subtrahend) is missing, subtract the difference from the larger number (minuend)

14 - 8 = 6 answer is 6

b) ____ - 7 = 12

If the first part (minuend) is missing add the two remaining numbers (difference and subtrahend)

12 + 7 = 19 answer is 19

Try these:

21) 15 - ____ = 6

22) ____ - 2 = 9

23) 23 - ____ = 17

24) ____ - 11 = 17

25) ____ - 14 = 19

26) 32 - ____ = 24

27) 57 - ____ = 41

28) ____ - 51 = 97

29) ____ - 27 = 53

30) 47 - ____ = 8

Finding the missing parts of division problems also depends on what part is missing. Study the examples:

a) 28 ÷ ____ = 7

If the center part (divisor) is missing divide dividend by quotient.

28 ÷ 7 = 4 Answer is 4

b) ____ ÷ 6 = 7

If the first part (dividend) is missing, multiply the divisor and quotient.

6 x 7 = 42 Answer is 42

31) 36 ÷ ____ = 9

32) ____ ÷ 1 = 13

33) 84 ÷ ____ = 42

34) ____ ÷ 4 = 6

35) ____ ÷ 10 = 120

36) 42 ÷ __ = 6

37) 52 ÷ ____ = 13

38) ____ ÷ 19 = 3

39) ____ ÷ 21 = 7

40) 63 ÷ ____ = 9

# WORKING WITH WHOLE NUMBERS F-3

Name_____ Period_____ Date_____

| Objective: | You will be able to solve mathematical sentences using letters as variables (place holders) and use parentheses to indicate multiplication. |
|---|---|

Serveal symbols used to indicate multiplication are: "x", "( )", a raised dot "·", and letters written next to each other or written next to a number without an operational symbol.

Examples:

| | |
|---|---|
| 2 x 8 = 16 | 3 · 8 = 24 |
| (2)8 = 16 | 2 · 2 · 2 = 8 |
| 4(7) = 28 | 6n means six times the value of n |
| (3) (5) = 15 | AB means A times the value of B |

Answer the following:

1) 6 x 8 = _____ 2) 5 · 7 = _____

3) (8) (6) = _____ 4) (8)9 = _____

5) 8(9) = _____

Write the value for the variable which will make these statements true.

6) 6 x r = 30 r = _____ 7) 4n = 48 n = _____

8) h x 10 = 90 h = _____ 9) s x 3 = 36 s = _____

10) 2a = 60 a = _____ 11) 4(k) = 44 k = _____

12) 6b = 36 b = _____ 13) (7)(n) = 56 n = _____

14) 3m = 27 m = _____

Letters (variables) are often used to indicate an answer.

For example: 3 x 6 = n, n represents the answer.

18 = n The value of "n" to make this sentence true is 18.

Examples:

a) 5 x 9 = x
45 = x

b) 7 x 6 = g
42 = g

c) 14 - 6 = a
8 = a

Solve:

15) 16 - 8 = x
_____ = x

16) 9 x 4 = x
_____ = x

17) a = 7 x 6
a = _____

18) 4 · 7 = b
_____ = b

19) 6 x 3 = y
_____ = y

20) z = (9)(4)
z = _____

21) $y = 4 \times 4$ _____

22) $c = 9 \times 9$ _____

23) $w = 9 \times 12$ _____

24) $z = (8)(9)$ _____

25) $m = 7 \cdot 6$ _____

26) $24 \cdot 2 = p$ _____

Work these problems

Write an equation and give the solution for each of these problems.

27) Benny buys his lunch at the Franklin cafeteria. Every day he buys 17 hot dogs. He does this 5 days a week. How many hot dogs does he eat each week?

Equation: 17 x 5 = A Solution: 85 = A

28) Earl received 12 times more A's than Clyde, and Clyde got 7 A's. How many A's did Earl get:

Equation: _____

Solution: _____

29) Prudence Dogood brushed her teeth 6 times a day, 7 days a week. How many times did she brush her teeth?

Equation: _____

Solution: _____

30) A school year is 180 days. George Smidlap put 5 pennies in a bank every school day. How many pennies did he save during his first year in Junior High?

Equation: _____

Solution: _____

31) A boy or girl can begin work at about $600 a month if they complete high school. Counting 12 months to a year how much would they earn in the first year after high school?

Equation: _____

Solution: _____

32) How many hours do you sleep a year?

Count 8 hours a day, 7 days a week for 52 weeks.

Equation: _____

Solution: _____

Name_____Period_____Date_____

Objective: You will be able to use exponents correctly.

1) $2 \times 2 =$ _____

2) $2 \times 2 \times 2 =$ _____

3) $2 \times 2 \times 2 \times 2 =$ _____

Another way to indicate how many times a number should be used as a factor is with exponents.

In problem #3, the $2 \times 2 \times 2 \times 2$ could be written $2^4$. In $2^4$, the 2 is called the base, and the 4 is called the exponent. The exponent is usually written as a small raised number to the right of the base number.

4) In $3^2$, the three is called the _____.

5) How would you write $3^2$ without using an exponent? _____

6) Write $2 \times 2 \times 2$ using exponents. _____

An exponent applies only to the number coming before it. So that

$2 \times 3^2 = 2 \times 3$ or $2 \times 9$

You are familiar with using 10 as a base. As $10^2 = 100$, $10^3 = 1000$

Fill in the blank with a number without the use of an exponent that will make the sentence true.

7) $2 \times 10^2 = 2 \times$ _____ $= 200$

8) $3 \times 5^2 = 3 \times$ _____ $= 75$

9) $2^2 \times 3 =$ _____ $\times 3 = 12$

10) $2^3 \times 5 =$ _____ $\times 5 = 40$

11) $5^2 \times 3 =$ _____ $\times 3 = 75$

12) $3 \times 7^2 = 3$_____ $= 147$

Rewrite the following expressions using exponents:

| Without exponents | | With exponents |
|---|---|---|
| $2 \times 5 \times 5 \times 5$ | = | $2 \times 5^2$ |
| 13) $2 \times 2 \times 2 \times 5$ | = | _____ |
| 14) $2 \times 3 \times 3 \times 3$ | = | _____ |
| 15) $2 \times 2 \times 5 \times 5$ | = | _____ |

 Name _____

| | Without exponents | | With exponents |
|---|---|---|---|
| (16) | a. 5 x 5 x 5 x 5 | = | _____ |
| | b. n x n x n x n | = | $n^4$ |
| (17) | a. a x a x a | = | _____ |
| | b. a x a x b x b x b | = | $a^2b^3$ |
| (18) | f x f x g x g x g | = | _____ |

Give a one-number answer to the following:

(19) $2^2 \times 3^2$ = 36 (21) $2 \times 5^2$ = _____

(20) $2^3 \times 3^2$ = _____ (22) $3 \times 5^3$ = _____

Now that you have been introduced to exponents, work out the following problems by finding the value of each:

(23) $2^4$ = _____ (29) $0^5$ = _____

(24) $6^3$ = _____ (30) $20^3$ = _____

(25) $9^3$ = _____ (31) $5^4$ = _____

(26) $5^2$ = _____ (32) $10^3$ = _____

(27) $8^4$ = _____ (33) $3^5$ = _____

(28) $7^4$ = _____ (34) $4^3$ = _____

Name _____ Period ____ Date _____

LEVEL F - CHECKPOINT 1 - 4 Working With Whole Numbers

Use the correct symbol $<$ or $>$ .

1) a) 107 ____ 106

b) 999 ____ 6666

2 a) eighty seven _____ eighty nine

b) five hundred _____ four hundred ninety nine

(F-1)

Fill in the blanks

3) 37 + _____ = 51

4) _____ - 11 = 23

5) _____ ÷ 7 = 12

(F-2)

Write this problem using three different symbols.

6) eight times seven

a) _____ b) _____ c) _____

7) a. 3m = 27 m = _____ b. 6c = 18 c = _____

(F-3)

8) $4^3$ the _____ is the base
the _____ is the exponent

9) a. $3 \times 5^2$ = _____

b. $2^2 \times 3^2$ = _____

10) Write these using exponents

a) 5 x 5 x 5 x 5 _____

b) a a a b b _____

Name _____ Period ____ Date _____

Working With Whole Numbers

Level F A-Checkpoints 1 - 4

Use the correct symbols $<$ or $>$ for the following problems.

1) a. 1001 ____ 1002

b. 999 ____ 1111

2) a. thirty seven _____

b. one hundred twenty seven _____ thirty six / two hundred

(F-1)

Fill in the blanks

3) 37 + ____ = 48

4) ____ - 12 = 35

5) ____ ÷ 4 = 9

(F-2)

6) Write this problem using three different symbols for multiplication:

seven times six a) _____ b._____ c._____

7) a. 4n = 20 n = _____ b. 6t = 24 t=_____

(F-3)

8) $5^2$ the _____ is the exponent

the _____ is the base

9) a. $2 \times 4^2$ = _____

b. $3^2 \times 5^1$ = _____

10) Write using exponents

a. 4 x 4 x 4 = _____

b. s s t t t t _____

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Name _____ Period _____ Date _____

**Objective: You will be able to determine the correct order of operation if** both (+,x) are indicated in the problem

**Which answer below is correct?** _____

(a) $5 + 3 \times 4 =$ 32 (b) $5 + 3 \times 4 =$ 17

When both addition and multiplication are used in a sentence do the multiplication first. Parentheses help you.

Watch. $5 + 3 \times 4$ can be written with parentheses as $5 + (3 \times 4)$

Doing what's inside the parentheses first $5 + (12)$

adding 17

1. $5 + 11 \times 2$ can be written $5 + (\quad)$

   Doing parentheses $5 + \_\_\_\_\_$

   adding _____

2. $2 + 9 \times 3 =$ ____ + ( )

   ____ + _____

   _____

3. $7 \times 3 + 2 = (\quad) + 2$

   _____ + ___

   _____

4. $20 + 5 \times 2 = (\quad) +$ ____

   _____ + ____

   _____

5. $20 \times 5 + 2 = (\quad) +$ _____

   _____ + _____

   _____

Find the solution:

6. $6 \times 2 + 2 =$ _____
7. $4 + 2 \times 2 =$ _____
8. $7 \times 6 + 5 =$ _____
9. $7 + 6 \times 5 =$ _____
10. $15 + 5 \times 3 =$ _____
11. $3 + 9 \times 2 =$ _____
12. $9 \times 3 + 4 =$ _____
13. $1 + 2 \times 5 =$ _____
14. $4 + 4 \times 4 =$ _____
15. $2 \times 8 + 6 =$ _____
16. $7 \times 7 + 3 =$ _____
17. $7 + 7 \times 3 =$ _____
18. $3 + 2 \times 3 =$ _____
19. $6 + 14 \times 2 =$ _____
20. $2 + 3 \times 4 =$ _____
21. $5 \times 5 + 2 =$ _____

Remember to do multiplication first.

22. $6 + 3 \times 4 + 2 =$ _____
23. $3 \times 5 + 2 \times 8 =$ _____
24. $5 + 4 + 7 \times 4 + 2 =$ _____
25. $3 \times 8 + 5 \times 4 + 7 =$ _____

# WORKING WITH WHOLE NUMBERS F-6

Name _____ Period ____ Date _____

Objective: You will be able to work problems with more than one operation sign and learn the order of operations.

In the previous lesson you learned that you multiply first then add in problems with x, + signs. With all four operations and long problems, just follow this simple rule:

1) First multiply and divide starting from left to right.

2) Add and subtract from left to right.

Example: $4 \times 3 \div 2 + 3 \times 6 - 11 =$

First multiply and divide from left to right

$12 \div 2 + 3 \times 6 - 11 =$

$6 + 3 \times 6 - 11 =$

$6 + 18 - 11 =$

$24 - 11 =$

$13$

Try These:

1) $3 \times 6 - 7 \times 2 + 3 =$ ____

2) $18 \div 2 - 7 =$ ____

3) $6 + 3 \times 5 - 8 \div 2 =$ ____

4) $6 \times 2 \times 3 =$ ____

5) $4 - 2 \div 2 \times 1 + 3 =$ ____

6) $9 + 5 \times 2 - 6 =$ ____

7) $6 + 3 \times 4 - 10 =$ ____

8) $16 \div 8 \times 3 =$ ____

9) $7 + 9 \times 1 - 15 =$ ____

10) $23 - 17 \times 2 \times 0 =$ ____

Check you answers above before going on. In some problems, parenthesis ( ), brackets [ ] and braces { } are used to group numbers. To work these problems, follow these rules:

1) First-PARENTHESIS (you may need to use Steps 4 and 5 to work what is in parenthesis)

2) Second- BRACKETS

3) Third- BRACES

4) Fourth- Multiply and divide left to right

5) Fifth - Add and subtract left to right

Study these examples:

a) $3 \times (4 + 2) =$ _____

1) parenthesis first $4 + 2 = 6$
2) multiply $3 \times 6 = 18$

answer is 18

b) $4 \times (3 - 1 \times 2) =$ _____

1) parenthesis first $3 - 1 \times 2$
   a) first multiply $1 \times 2 = 2$
   b) then subtract $3 - 2 = 1$
2) multiply $4 \times 1 = 4$

answer is 4

c) $3 \times \{4 + [8 \div (5 - 3)]\}$

1) parenthesis first $(5 - 3) = 2$
2) brackets second $[8 \div 2] = 4$
3) braces third $\{4 + 4\} = 8$
4) multiply fourth $3 \times 8 = 24$

answer is 24

Try these:

11) $3 + (7 \times 2 - 8) =$ _____

12) $4 + 3 \times (7 - 5) =$ _____

13) $[(8 - 5) + 9] \div 3 =$ _____

14) $64 \div (2 \times 4) + 6 - 4 =$ _____

15) $16 - (7 \times 2) + 9 =$ _____

16) $5 + \{9 - [3 \times (2 - 1)]\} =$ _____

17) $(9 + 7 \times 5) - 10 =$ _____

18) $16 \div 8 \times (3 + 7) =$ _____

19) $2 \times [(0 + 4) + 5] =$ _____

20) $21 \div (7 - 4) - 7 =$ _____

Name _____ Period ____ Date _____

Objective: You will be able to find the averages (means).

To find the average of a group of numbers you do the following steps.

1) Add all the numbers together.

2) Count how many numbers you have added. Use that number and divide it into the sum of step 1.

Example: What is the average of 7, 9, 11

Step 1 $7 + 9 + 11 = 27$

Step 2 $27 \div 3 = 9$

the answer is 9

Find the average of the following. Show your work.

1) 4, 6, 8, 10 Step 1 $4 + 6 + 8 + 10 =$ _____

Step 2 _____ $\div 4 =$ _____

2) 3, 7, 8 Step 1 ___ + ___ + ___ = _____

Step 2 _____ ÷ _____ = _____

3) 9, 12, 0 _____

4) 7, 14, 20, 27 _____

5) 5, 9, 12, 14 _____

6) 8, 8, 6, 5, 9, 6 _____

7) 2, 3, 2, 4, 5, 6, 6 _____

8) 51, 36, 33 _____

9) 13, 16, 10, 12, 14, 19 _____

10) 75, 90, 63, 84, 92, 58 _____

F-7 (con't)

Average can be used to find the number exactly halfway between two given numbers.

Example: The number halfway between 2 and 4 is 3. The average of 2 and 4 is 3. Find the number exactly halfway between the given numbers by finding the average.

11) 21 and 29 _____ 12) 35 and 47 _____

13) 495 and 933 _____ 14) 88 and 98 _____

15) 3001 and 3007 _____ 16) 123 and 1235 _____

Averages can be used for many things. Do these problems using averages to solve them.

17) Some teachers use the average with this grading scale.

90 to100 = A 80 to 89 = B 70 to 79 = C 60 to 69 = D below 60 = F

If you got scores of 95, 60, 80, 82, 73, 50, 98, and 87 would you get an A, B, C, D, or F? _____

18) Bertha's "Quickie Quiz" Scores for 20 days were: 5, 4, 4, 4, 2, 4, 4, 4, 5, 5, 5, 4, 3, 3, 4, 5, 3, 3, 3, 5.
What was her average score? _____

19) The Raiders scored 36 points, 24 points and 6 points in three football games. What was their average score per game?

_____

20) Joe weighs 125 pounds, Linda weighs 80 and Joann weighs 95 pounds. What is their average weight? _____

WORKING WITH WHOLE NUMBERS F - 8

Name _____ Period _____ Date _____

Objective: You will be able to tell which operation to use to solve word problems.

Here are some key words to look for in word problems, They help you decide what operation to use.

| ADDITION | SUBTRACTION | MULTIPLICATION | DIVISION |
|---|---|---|---|
| total | less | times | divide by |
| sum | minus | product | each |
| more | difference | twice (2 times) | half |
| increased | decreased | | |

Write add , subtract, multiply or divide in the blank.

Example: What is the sum of 4, 7 and 8 _____
you would add

Try these:

1) What is the product of 5 and 7?_____

2) What is seven decreased by four? _____

3) Twice seven is what number _____

4) The sum of 10 and 23 is what number _____

Now do the same things for these regular word problems.

5) James spent 23¢ on candy, 14¢ on gum and 37¢ for a comb. How much money did he spend? _____

6) There were 36 birds sitting on a fence. Three fell off. How many were left on the fence? _____

7) There are 6 rows of chairs and 5 chairs in a row. How many chairs are there in all? _____

8) There were 42 candy bars to be shared evenly by 7 people. How many candy bars did each person get? _____

9) If John makes $10 a week, how much will he make in 7 weeks? _____

F-8 (con't)

10) Evelyn needs 2 cups of flour for cookies, 4 cups of flour for bread and 3 cups of flour for a cake. How many cups of flour does she need? _____

11) I want a new bicycle which costs $125. I only have $78. I am short how much money? _____

12) Gertude has 36 hamsters but only 9 cages. If she wanted the same amount of hamsters per cage. How many hamsters would there be in each cage? _____

13) Phil sold 25 papers at 10¢ each. Then he worked for 2 hours at 25¢ an hour. To find how much money he had all together you can _____ and then _____.

14) Mr. Hall must wash 217 windows. He washed 7 windows each day for 8 days. To find how many were left to wash, you can _____ and then _____.

15) The last 9 tickets for the rock concert were given to you, and two others. Each person received the same amount of tickets at $6.50 per ticket. To find out how much money you need to pay for the tickets you can _____ and then _____.

Name _____ Period ____ Date _____

Working With Whole Numbers

Level F  Checkpoint 5 - 8

1) $7 + 7 \times 3 =$ _____  2) $6 + 4 \times 3 + 2 =$ _____

(F-5)

3) $7 + 3 \times 4 - 10 =$ _____  4) $4 + (3 \times 2 + 4) =$ _____

5) $5 \times [4 + (16 \div 8)] - 3 =$ _____

(F-6)

Find the average

6) 13, 17, 15 = _____  7) 51, 59, 67, 73, 25 = _____

8) What number is halfway between 93 and 111 _____

(F-7)

Fill in the blanks with add, subtract, multiply or divide.

9) Sally earns $8 a week babysitting. How much does she earn in 5 weeks? _____

10) Mark is half as old as his sixteen year old brother. To find Marks age 4 years from now you can _____ and then _____.

Name _____ Period _____ Date _____

Working With Whole Numbers

Level F A-Checkpoint 5 - 8

1) $3 + 5 \times 7 =$ _____ 2) $5 + 3 \times 2 \times 2 =$ _____

(F-5)

3) $9 - 4 \times 2 + 6 =$ _____ 4) $28 \div 4 + (3 \times 2 - 5) =$ _____

5) $[5 - (8 \div 2 - 3)] + 6 =$ _____

(F-6)

Find the Average

6) 15 pounds, 31 pounds
35 pounds _____

8) What number is halfway between 83 and 245

_____

7) 101, 97, 84, 112, 121 = _____

(F-7)

Fill in the blanks with add, subtract, multiply or divide

9) 36 cars entered the big race, but only 19 finished. To find how many cars did not finish the race you can _____.

10) Misty is twice as old as her 8 year old brother. To find out how old Misty was 3 years ago, you can _____ and then _____.

(F-8)

Name _____ Period _____ Date _____

POSTTEST - LEVEL F Working With Whole Numbers

1) The symbol > means _____ than.

2) Arrange these numbers from smallest to largest.

37, 43, 39, 41, 33, 49, 45, 38 _____

Use the correct symbol < or > for the following problems.

3) a. 87 ____ 88

b. 1001 ____ 999

4) a. fifty six _____ fifty seven

b. two thousand nine hundred ninety nine _____ two thousand nine hundred ninety eight

(F-1)

Fill in the Blanks

5) 43 + ____ = 67

6) ____ - 24 = 13

7) 7 x ____ = 84

8) 63 ÷ ____ = 9

9) 42 - ____ = 28

10) ____ ÷ 11 = 14

11) Write this problem using three different symbols for multiplication.

seven times five

a) _____ b) _____ c) _____

12) 9 x 6 - ω w = _____

13) 5y = 35 y = _____

14) 3n = 18 n = _____

15) s x s = 25 s = _____

(F-3)

Posttest F (cont)

16) $4^2$ the _____ is the base

the _____ is the exponent

17) $2 \times 3^3 =$ _____

19) write using exponents

$4 \times 4 \times 4 \times 3 \times 3$

_____

18) $5^2 \times 2^3 =$ _____

20) c c c c c c d d _____

(F-4)

21) $3 + 5 \times 6 =$ _____

22) $7 \times 2 + 6 =$ _____

23) $4 + 5 \times 3 + 1 \times 7 =$ _____

(F-5)

24) $7 + 8 \times (2 - 1) =$ _____

25) $40 \div 5 + [4 \times (2 + 1)] =$ _____

26) $[28 - (4 + 2) \times 3] - 9 =$ _____

(F-6)

Find the average of the following

27) 62, 83, 77 _____

28) 8, 4, 7, 3, 5, 8, 7, 9, 3 _____

29) What number is halfway between 294 and 376 _____

30) 347, 585, 691 _____

(F-7)

Posttest F (cont) Name _____

Fill in the blanks with add, subtract, multiply and divide

31) Sue swims 50 laps a day. To find how many laps she swims a week you can _____.

32) Harry the hairless bought 4 season tickets to the local theatre for $10 each. He sold 1 ticket for $12. To find out how much he ended up paying you can _____ and then _____.

(F-8)

# LEVEL REVIEW F

Name_____Period_____Date_____

Working with Whole Numbers

Use the correct symbols < or > for the following problems

1. a) 1001_____1002
   b) 999_____1111
   c) thirty-seven_____thirty-six
   d) one hundred twenty-seven _____two hundred

(F-1)

Fill in the blanks

2. a) 37 + _____ = 48
   b) _____ ÷ 4 = 9
   c) _____ - 12 = 35

(F-2)

3. Write this problem using three different symbols for multiplication:

   seven times six: a)_____ b)_____ c)_____

(F-3)

4. $5^2$ a) the _____ is the exponent
   b) the _____ is the base
   c) $2 \times 4^2$ = _____
   d) $3^2 \times 5^1$ = _____

5. 3 + 5 x 7 = _____

(F-5)

6. 28 ÷ 4 + (3 x 2 - 5) =_____

7. 5 - (8 ÷ 2 - 3) + 6 = _____

(F-6)

8. Find average:

   101, 97, 84, 112, 121 = _____

(F-7)

Fill in the blanks with add, subtract, multiply or divide.

9. 36 cars entered the big race, but only 19 finished. To find how many cars did not finish the race you can_____.

10. Misty is twice as old as her 8 year old brother. To find out how old Misty was 3 years ago, you can_____and then_____.

(F-8)